

Railway Age

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Table of Contents Appears on
Page 5 of Advertising Section

A Changing Attitude Toward Railroads

SLOWLY but surely the attitude of business men, public men and the public toward the railways has been changing. When there was a business depression in 1921 President Harding started a movement for a general reduction in railway rates. When there is a violent decline in stock market prices and fear of a recession of business in 1929 President Hoover starts a movement to get the railways to maintain or even increase their expenditures for new equipment and other improvements.

Both movements were started to help general business. The former tended to reduce the revenues of the railways and compel them to reduce employment and wages and to curtail purchases, with the result of reducing employment, wages, and profits in the industries from which they buy. The movement started by President Hoover to maintain railway expenditures will, if successful, maintain railway employment, wages and purchases, and help to maintain the business of those from whom they buy. It can be successful, however, only if railway earnings are as well maintained as the available traffic will permit. This means, of course, that any attempt to reduce rates would be an interference with the President's program. President Hoover, like President Harding, is trying to use the railways to help maintain prosperity, but he is trying to use them in an exactly opposite way.

When Regulation Reduced Expenditures

The nation passed through a long period during which government regulation was adopted, increased and carried out upon the assumption that what industry and commerce mainly needed was lower rates; that the return the railways were allowed to earn should be made as low as the courts would not hold confiscatory; that however low was their return it was their duty to furnish good and adequate service, and that the public would find some way to force them to furnish it. The probable effects of this policy upon the amount of employment the railways could give, the wages they could pay and the purchases they could make, and upon the general business of the country, were almost wholly disregarded. A reduction in the annual capital expenditures of the railways from more than a billion dollars

in 1911 to less than three hundred million dollars in 1916 resulted. The consequences were car shortages which lasted for years, the inability of the railways to meet the demands imposed upon them by the War, and a very costly experiment with government operation.

The Transportation Act of 1920 announced a new policy of so regulating railways as to enable them to earn a fair return, the return they required to be determined largely by the need of the country for adequate transportation. Even under this law regulation has not been such as to enable the railways to earn the return they were assured. Having the assurance, however, hoping that in time it would be fulfilled, and with their net operating income increasing from the low point reached in 1921, the railways, beginning in 1923, have made large capital expenditures which have resulted in an unprecedented improvement in their service and in huge economies in operation. They have also in their public relations work spared no effort to inform the public as to what they have been doing and its effects upon general business. What they have accomplished has caused a great change in public sentiment, and it is largely in consequence of this that they are now confronted, not with a general demand for a reduction of their rates, but with a general demand voiced through the President of the United States for them to continue with their program of improvements.

The old sentiment for reductions of rates is not entirely dead. The belief still prevails in some quarters that readjustments or reductions of rates are the main thing needed to help certain industries. The Hoch-Smith resolution, directing the Interstate Commerce Commission to reduce rates to aid depressed industries, is still in effect. The agitation for the development of inland waterways to reduce freight charges at the cost of the taxpayers and to divert traffic from the railways is stronger than ever. But even the Hoch-Smith resolution implies that reductions of rates for the benefit of industries that are depressed shall be compensated for by advances in the rates of industries that are prosperous. Even the waterway advocates recognize the change in public sentiment toward the railways by saying that they don't want to hurt the railways, but to help them by "relieving" them of low grade traffic and

by stimulating the growth of traffic so that there will really be more of it for the railways themselves.

A Wide Difference in Policy

There is a wide difference between demanding a reduction of rates, regardless of its effects upon railway expenditures, and asking for the greatest practicable maintenance of railway expenditures. Directly and indirectly the amount the railways can spend for improvements depends upon their earnings. Therefore, if expenditures are to be maintained, earnings must not be reduced, excepting, perhaps, by a decline of traffic.

R. H. Aishton, chairman of the Association of Railway Executives, after the meeting of the executives in Chicago on November 22, issued a statement saying that the meeting endorsed the "suggestions made by President Hoover at a conference early this week that the railroads co-operate in the maintenance of employment and business progress during the coming year," and "agreed to do everything possible to aid in continuing the maintenance of business in this country on a normal basis."

The effects of the policy adopted by the railway executives are sure to be important, far-reaching and lasting. They will help to maintain business in the immediate future. They will put the railways in better shape to render good service and to operate with maximum economy. The principal thing the business of the country needs from the railways is good service. It also needs the cheapest service they can render while conducting their own industry at a reasonable profit. The surest way to enable the railways to render service at the lowest practicable rates is to enable them to invest capital in improvements that will save labor, fuel and materials. Therefore, the movement started by President Hoover, to which the railways are giving their support, is not only in the immediate interest of general business and good transportation service, but far more in the interest of real reductions in the cost of transportation than have been past movements for the reduction of rates.

Declining Passenger Business

THE passenger business of the railways is showing a smaller decline in 1929 than in any year since 1920 excepting 1925; but it is still declining. All the loss occurring is in day coach business, as travel in sleeping cars is larger than last year. The total loss in the first eight months of this year was about 1 per cent, as compared with a loss of about 6 per cent in 1928 and 5.2 per cent in 1927. Railway passenger business is now about 34 per cent less than in 1920. Passenger earnings in 1920 were about \$1,305,000,000, while in 1929 they will be about \$882,000,000, a loss of about \$423,000,000.

The decline in passenger earnings that is occurring is mainly due, of course, to the decline in passenger business; but it is partly due to a slow but steady decline in the average passenger rate. The average rate in 1920 was 2.755 cents. As a result of the advance in rates made in the latter part of that year it increased in 1921 to 3.093 cents. It has declined in every year since, and in the first eight months of the present year was only 2.804 cents, or but slightly higher than in 1920, and more than 9 per cent less than in 1921.

Earnings of the railways from passenger business in 1929 will be the smallest since 1917, while the passenger traffic handled by them will be the smallest since 1909.

The Railways Function as Business Stabilizers

ANALOGOUS to the disposition of American railway executives to co-operate in President Hoover's efforts to inspire renewed confidence in business prosperity is the spirit in which their British contemporaries have entered that government's plans for the relief of unemployment. On November 4 there was outlined in the House of Commons the progress which has thus far been made with these unemployment plans. In commenting upon this parliamentary report the *Railway Gazette* (London) says: "Whatever may be thought of the program as a whole, there is one feature which is abundantly clear, and that is that the solid backbone of the whole structure is to be found in that part of it which is concerned with the railways."

The editorial continues to point out that, "No matter what may be the political complexion of the government . . . whenever they find themselves in a practical difficulty . . . they turn to the railways to help them out and, be it added, they are never disappointed."

The work projected to date in the British government's plan contemplates a total expenditure of £42,000,000. Of this the projects of three railway companies will involve an outlay of £7,000,000. This latter, however, does not include the final programs of the London & North Eastern and the Southern which will greatly augment the railway portion. Nor does it include the £7,000,000 to be spent by the railways as representing the capitalized value of savings from the recent remission of the passenger duty (See *Railway Age* of October 25, page 990).

The *Gazette* proceeds from the foregoing to conclude: "It used to be an axiom that 'facilities create traffic.' It is obvious that this does not apply indefinitely, but there is no doubt that these facilities and schemes put forward by the railways will create a great deal of employment, direct and indirect. To what extent they will directly benefit the railway companies themselves remains to be seen, and depends perhaps in some meas-

ure upon the recognition by the community of the debt and the duty which they owe to the railways."

It would seem that this comment, especially the closing sentence, could be made on the action of American railway executives in assuring President Hoover that the railways here would proceed with full programs of construction and betterment undeterred by any feeling of cautiousness or uncertainty such as might have been inspired as a result of the recent sharp deflation in the stock market.

Accidents and Claim Prevention

WHEN an accident occurs it is necessary, of course, to clear the line as promptly as possible. Not so many years ago, instructions to do so were carried out extremely literally. Freight cars were tossed hither and yon by the "big hook," and if one or two happened to roll down the embankment, nothing much was thought of it. The prevalent idea was that the wreck was most unfortunate, but the freight involved was a total loss anyway, so why worry about it. These "slam-bang" methods are hardly in keeping with modern operating tactics. When ten or twenty freight cars happen to be derailed, the loss to the railway is serious enough, as any claim agent will testify, without adding to it by careless methods.

With the idea of curtailing this needless expense, the Missouri Pacific conceived an idea some years ago that has been carried out ever since, with increasingly satisfactory results. Traveling representatives of the superintendent of freight claim prevention are located at strategic points throughout the system. They have many duties, but one of their principal jobs is to get to the scene of any accident involving freight cars as quickly as possible. Frequently they go out with the relief outfit, but in every case they are on the ground within a short time after the accident occurs. They supervise the salvaging of the freight that is spilled, and do not leave the scene until all freight has been picked up in accordance with their directions. If the accident happens to be a particularly serious one from the standpoint of potential damage claims, the superintendent of claim prevention makes a personal appearance on the scene to direct the work.

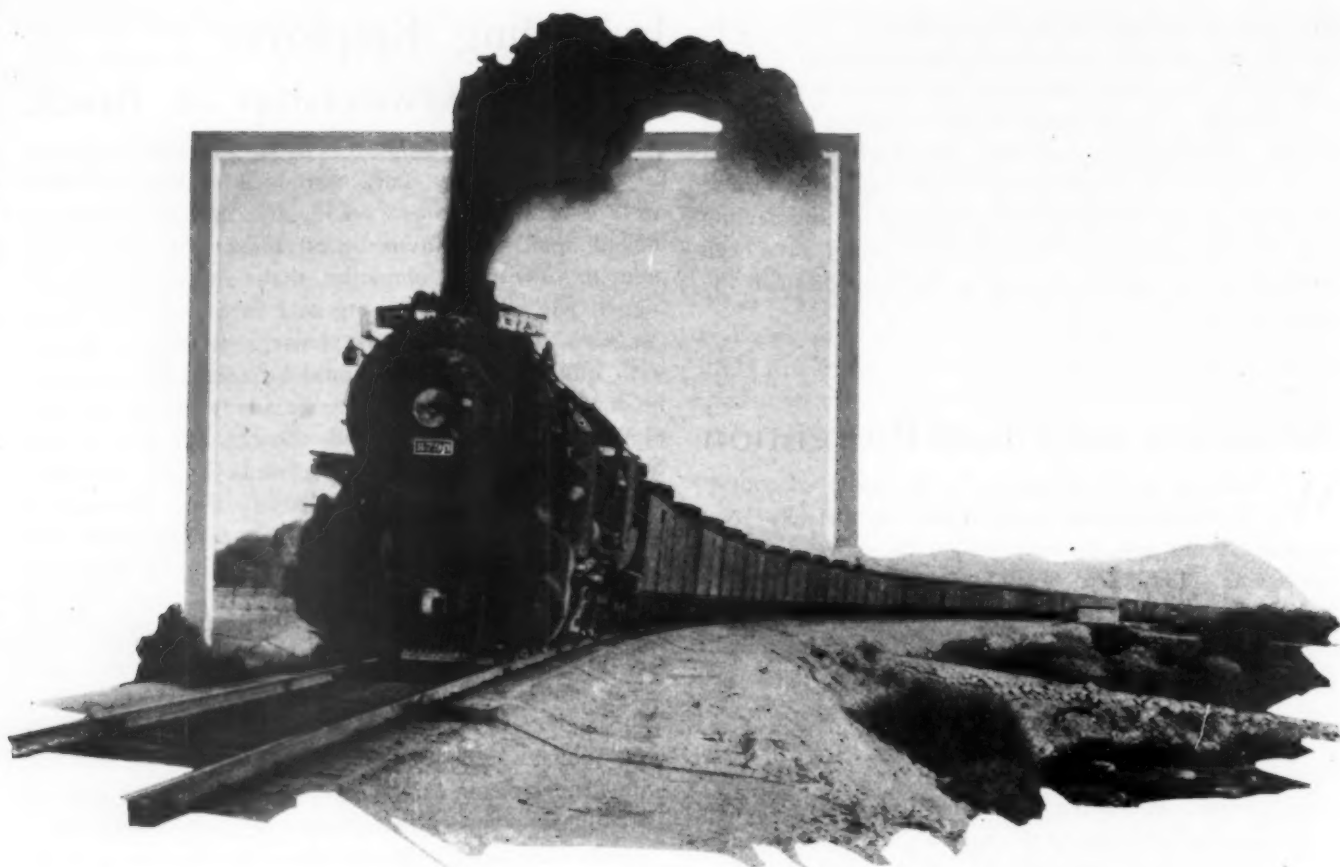
In this manner, by having an expert in freight handling and salvaging on the ground at every accident, many claims have been avoided altogether, many others have been made far less than they would otherwise have been. In a number of instances where the contents of cars were damaged to such an extent as to involve payment for the lading of the entire car, the material has been salvaged and sold by the railway, thus reducing the loss to a minimum. The plan has proved eminently successful, and the small extra expense involved has been made up many times over by the reduction in damage claims.

Extending Employee Ownership of Stock

SALE to railroad employees of stock in the companies for which they work, provided such investments are reasonably safe and yield a fair return, must be looked upon with favor by all concerned. From the point of view of the employee, if the stock is offered to him at par while it is being sold in the market above par, then it constitutes in a sense a division of profits with him which, legally, could be restricted to stockholders. Furthermore, once he owns stock, the employee stands to gain directly henceforth, just as any other stockholder, from any advance in the efficiency of operation. From the standpoint of the company, it is entirely fitting to make available to employees as well as stockholders any advantage offered in the way of a discount from the regular market price when stock is offered for sale. Such a provision will certainly be appreciated by employees and should increase their interest in improving the efficiency of the operation of their railroad. It is not only just, but it is also sound business to make some provision whereby everyone who can influence efficiency may be given an opportunity to profit directly, if he uses this influence to good effect.

Judicious and continuous plans for the sale of stock to employees seem to be the most practicable device for securing a number of benefits which should make railroading more efficient, more profitable and more "human"—if we may use the latter rather indefinite term to embrace the socially desirable characteristics of an enterprise in which the worker is also the owner. It appears, moreover, that the advantages of stock sales to employees are being more and more generally recognized. Attention was recently called in these pages to the Pennsylvania's plans which were carried into effect during the past year. These have had the result of increasing each month the distribution of ownership in that company, which on November 1 was divided among 188,047 stockholders.

The Baltimore & Ohio has now announced its intention of applying to the Interstate Commerce Commission for authority to offer to employees at par on partial payments one share of stock for each \$500 of their average annual compensation. With the stock selling in the market at about \$115, this offer virtually amounts to a bonus of \$75 to the employee whose average annual earnings are \$2,500. This is an award worth securing, but it wisely is not offered outright—but rather is reserved to those employees who have faith in their company, who are seeking its success and who are willing to accept a regime of thrift as proof of their worthiness. Employee participation in ownership is a movement which may profitably be watched by railroad men everywhere who are interested in the formulation of policies purposing increased efficiency, better service to patrons, increased earnings and friendly relations with employees and the public.



Imperial Valley Products on Their Way East

Perishables Require Specialized Operations

Southern Pacific has built up efficient organization in the Imperial Valley

DURING the last shipping season, which ended late in August, the Southern Pacific hauled 19,931 cars of cantaloupes from the Imperial Valley with a maximum single day's loading of 510 cars, on June 29. The one-day record for all time, was made on June 7, 1922, when 642 cars were loaded. This year, for the first time, the shippers had in effect an arrangement to control the loading, in order to avoid glutting the eastern markets and breaking the price. This resulted in spreading the loadings and eliminating abnormal peak-load periods of two or three days' duration. Also, because of cold weather, loading in quantity did not begin this year until May 23, about two weeks later than the usual starting date.

S. P. Aids Development

By establishing reliable schedules and maintaining a sufficient car supply, the Southern Pacific has played an important part in the transformation of the Imperial Valley from a desert waste to a rich agricultural district. Apart from cantaloupes, this district produces

casaba and honey-dew melons in quantities, besides a watermelon crop that amounted to 3,621 cars for the calendar year of 1928, and a lettuce crop amounting to 12,155 cars. The progress in the valley is indicated by the car loadings, an historical record of which is given in the table.

The steady increase from 297 cars in 1905, to 14,222 cars in 1920, and to 36,870 cars last year, would have been impossible if the Southern Pacific had not provided progressively improving transportation service. Evidence of this is found in the schedules for the 1929 season from Brawley, Cal., to eastern destinations, which were as follows:

	Miles	Hours
Brawley to Chicago	2,104	142½
Brawley to El Paso	637	54½
Brawley to St. Louis	1,880	120
Brawley to Kansas City	1,585	105

Loading Operations

There are approximately 58 shippers in the Valley, and 50 packing houses are operated. These load at 12 points, situated on the line between Niland, Cal.,



On the Icing Platform at El Centro

and Calexico, on the Westmoreland and Sandia branches, and on the Holton Interurban Railway. The growers bring the melons to the packing houses at these points in the late afternoon and evening. Here they are inspected for sugar content by state inspectors and packed and loaded into cars up to 10 p. m. About 336 crates of melons are loaded into each car, with a 20,000-lb. minimum. Each crate contains 45 melons, and weighs 68 lb. ready for shipment.

To insure an adequate car supply, a reserve of about 5,000 empties is maintained in the vicinity of the valley immediately prior to and during the shipping season. The Pacific Fruit Express Company provides the refrigerator cars, and handles their inspection, conditioning and repairs, as described in the *Railway Age* of June 22, 1929, page 1404.

The shippers transmit orders for cars for the following day's loading to the office of the Pacific Fruit Express at Brawley on or before 5 p. m. each day. The Southern Pacific officers are informed of the requests, and, after the cars are prepared by the P. F. E., as described later, the S. P. sets them early the following day for loading that afternoon and evening.

The supervision of S. P. operations in the valley is in the hands of a trainmaster, who is transferred from Indio, Cal., to Brawley for the duration of the heavy shipping season. He is in complete control of all operations in the valley, directing every movement between Calexico and Niland. An assistant trainmaster at Brawley and two assistants at El Centro aid in the supervision, these men being appointed for the duration of the cantaloupe season only.

About 14 switching engines and crews are employed in the valley during the height of the season. The extent of their work is indicated by the fact that some of the packing-house tracks are pulled six or seven times daily. These crews are recruited from the regular road crews on the division, the runs being bulletined and bid in on the basis of seniority. Because of the high earnings and steady work, there is never any lack of available men.

Each crew is assigned to a certain territory and the runs are arranged so as to give the maximum service. The first run at Brawley begins at 7 a. m., the locomotive being double-crewed with two 12-hr. shifts, and performing switching work in the vicinity of Brawley. The second run starts at 8 a. m. and comprises a run to the Westmoreland branch with a train of empties for spotting, working there during the day and bringing back a train of loads, before going off duty at Brawley at 8 p. m. The third and fourth jobs are 12-hr. shifts, one beginning at 10:30 a. m., the other at 12 noon, both

Growth of Imperial Valley Shipments

Year	Total Car Loadings	* Cantaloupe Loadings
1905	297	297
1906	577	577
1907	644	644
1908	1,837	1,804
1909	1,417	1,317
1910	1,612	1,525
1911	2,817	2,564
1912	3,229	2,818
1913	4,033	3,434
1914	5,135	4,407
1915	5,726	4,666
1916	5,679	4,634
1917	6,318	4,986
1918	6,355	4,392
1919	10,466	7,838
1920	14,222	8,938
1921	16,575	10,686
1922	19,493	12,159
1923	23,782	12,563
1924	28,621	16,045
1925	29,194	14,541
1926	31,873	14,150
1927	34,524	18,035
1928	36,870	19,672

* Includes casabas and honey-dew melons.

being used in switching the loading sheds at Brawley. The fifth crew goes on at 2 p. m., proceeding at once to the Sandia branch with a train of empties, serving the loading points on this branch and returning by midnight with a train of loads. The sixth crew goes on at 3 p. m. and proceeds to the Westmoreland branch to relieve the second crew. It returns with loads at 1 a. m. and then helps to clean up the yard work at Brawley. The seventh crew goes on at 5 p. m., switching at Brawley until 7 p. m., then making a trip to the Westmoreland branch for loads. Upon returning, it is kept occupied until 5 a. m., switching around Brawley. The crews at El Centro and Calexico are operated on a similar basis.

To avoid accidents, 15 special watchmen are placed at grade crossings in the valley during the season.



Bringing a Train of Empties into El Centro



Comfortable Dormitories Are Provided for Employees

All but about 15 per cent of the melons move eastbound over the S. P. Brawley, El Centro and Calexico are the principal concentration points. All eastbound trains start from Brawley, filling out to the full tonnage of 124 cars at El Centro and Calexico. By arranging for each train to pick up cars at all three points, a steadier movement of loads is maintained and the yards are kept free from blockades and other delays. Normally, two regular trains are operated daily from Calexico to Indio to handle the westbound traffic, picking up cars at El Centro and Brawley. Four regular eastbound road crews operate between Brawley and Yuma, and one regular westbound crew between Calexico and Indio, other crews being called from the pool as needed.

The eastbound trains are handled principally by 2-10-2 locomotives, with a few three-cylinder engines. These locomotives handle the trains of 124 cars from Brawley to Yuma, 84 miles, in six hours, including the time spent in filling out tonnage at El Centro and Calexico, and the inspection at the Mexican border at Calexico.

The first eastbound cantaloupe train leaves Brawley at 7 p.m., and is scheduled to reach Yuma at 1 a.m., where it ties up. The second train leaves Brawley at 11 p.m., for Yuma, and returns immediately with a train of empties. The third train leaves Brawley at 2 a.m., and also returns to Brawley from Yuma with empties. If there are enough cars for four trains, the fourth train leaves Brawley about 12:30 a.m., running short if necessary.

From Yuma, the trains are operated to El Paso, either over the new line of the S. P. through Phoenix, or via Tucson and the El Paso & Southwestern line of the S. P. Originally, all the cantaloupes moved via S. P.—E. P. & S. W. to Tucumcari, N. M., thence via the Chicago, Rock Island & Pacific. In recent years, however, several new routes have been evolved and the business is now highly competitive east of El Paso. About half of the movement still goes via Tucumcari and the Rock Island, the remainder being divided about equally between the Texas & Pacific and the Southern Pacific, Atlantic System. The T. & P. handles the cars either to Fort Worth for delivery to the Missouri-Kansas-Texas, or to Texarkana, for delivery to the Missouri Pacific. The S. P., Atlantic System, handles the cars to Corsicana, Tex., where delivery is made to the St. Louis Southwestern for movement to St. Louis.

An important feature of the cantaloupe movement is the diversion orders, all of which are handled by the Pacific Fruit Express. During the busy season, be-

tween 275 and 300 diversion orders are handled daily, and for the entire season, the total diversions average about 7,000. For this reason, the trains are made up only for El Paso, and no attempt is made in the valley to classify beyond that point. Every train is operated under a block number and the diversion clerks are supplied with train consists and passing reports. A teletype has been installed between Brawley and El Centro to facilitate the handling of diversions, and there is direct wire service from Brawley to El Paso and to Los Angeles, and from El Paso to Chicago.

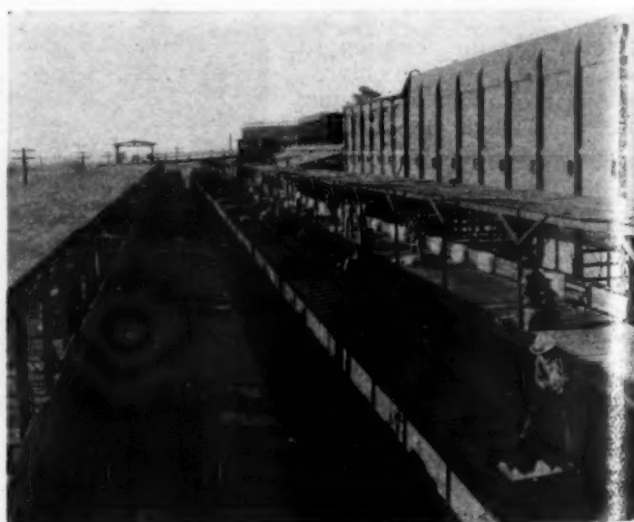
The local offices of the S. P. handle the billing, such forces being increased by 30 men during the busy season. Typewriters, computing machines and other office equipment are brought in under the S. P.'s plan for the distribution of such equipment. At the conclusion of the cantaloupe season, many of the clerks of both the S. P. and the P. F. E., together with office equipment, are transferred to the San Joaquin valley for the grape movement, and later to Southern California for the citrus movement.

About 135,000 tons of ice are used at Brawley, Calexico and El Centro, during the cantaloupe season alone. The plants of the P. F. E. at these points have a storage capacity of approximately 78,000 tons, all of which is made and stored in advance of the season, and a daily manufacturing capacity of 750 tons.

When the cars are ordered, they are set at the icing docks for icing and are taken to the loading points under ice. After loading, they are again returned to the icing plant for re-icing before being forwarded in trains. If the cars are delayed more than five hours in departing, they are again set at the ice-dock for further icing. After leaving the valley, the cars are re-iced at Yuma, eastbound, and at Indio, westbound.

Some 115 men at Brawley, and 60 men each at Calexico and El Centro, working in 12-hr. shifts, are employed in icing operations. Up to 2 p. m., these men are engaged in icing cars prior to loading. After that time, the loads begin to come in for re-icing until 2 a. m., when the last loaded cars are put in trains.

The P. F. E. organization in the valley includes agents at Brawley, El Centro and Calexico, with assistant agents at each point. The supervisory force also includes a traveling agent, who makes the rounds of all loading points daily, and an icing inspector, who covers all icing plants every day. Sleeping quarters and dining rooms are provided for the clerks and the icing-plant employees.



Loaded Cars Are Given Their Final Re-icing at Brawley



The New Back Bay Station of the New Haven at Boston

New Haven Sets New Mode in Passenger Station Design

Compact, business-like structure at Boston offers many practical advantages over larger building destroyed by fire

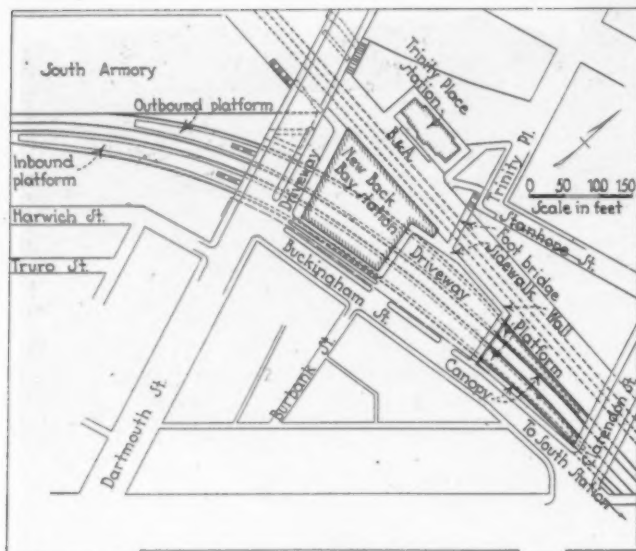
LESS than fifteen months after a conflagration which destroyed its Back Bay station in Boston on April 15, 1928, the New York, New Haven & Hartford opened a new passenger station on the same site, which presents a striking contrast with the old station, and yet is pleasing in appearance and much more advantageous to both the railroad and the public. This station is located on the south side of the city, in a rather congested business and industrial section, and serves as an important suburban stop for all New Haven trains entering or leaving the South station, which is the Boston passenger terminal of the road. Like the old structure, the new building spans the station tracks and platforms, over which it is carried on a series of multiple masonry arches supported on steel columns. Like the old station also, the new building is confined entirely within one city block, bounded on the north by the tracks of the Boston & Albany, on the east by Dartmouth street, on the south by Buckingham street, and on the west by Clarendon street.

The old station, which was about 30 years old, was a stone masonry structure of bold architecture, entirely

different in appearance from the relatively plain, business-like structure which has taken its place. While the new station is considerably smaller than the old one, it is capable of accommodating conveniently many more passengers than could be handled in the old station without congestion. Where the old building crowded the station site, the new building has been set back approximately 40 ft. from the east line of Dartmouth street to provide a wide driveway and walk. It has likewise been set back about 25 ft. from Buckingham street, which permitted the construction of a sidewalk and a two-lane taxicab drive on this side. Also, owing to its shorter length, parking space for about 100 automobiles has been made available on the side of the station facing Clarendon street.

Station is Well Laid Out

The new station is a steel frame, fireproof structure, two stories high, and is faced with an attractive red brick, ornamented with limestone trim, a granite base course and a cast stone band course just above the second story windows. The station is more or less



General Track and Building Plan at the New Station

rectangular in shape, with a frontage of 145 ft. on Dartmouth street, 136 ft. on Buckingham street, 179 ft. on the Boston & Albany tracks, and about 100 ft. on the side facing Clarendon street.

The main floor, which houses all of the facilities for the use and convenience of passengers, is laid out with a large combination waiting room and concourse in the center, surrounded by auxiliary facilities. This room, which is about 20 ft. high, contains about 6,900 sq. ft. of floor space, unobstructed, except for a central information booth equipped with a train board and telegraph facilities, and four long back-to-back settees at the Buckingham street end. The ticket office, with ten windows, is located along the north side of the room, and is entirely enclosed by a high marble counter surmounted by plate glass in a bronze framework.

Entrance to the main waiting room is gained through any of four lobbies; one centrally located on the Dartmouth street side, two located on the Buckingham street side, and one on the side of the station facing the auto parking area. The entrance to the Dartmouth street lobby is protected by an ornamental bronze and glass marquee, while the entrances to both of the lobbies on the Buckingham street side, where taxicab serv-

ice is maintained, are protected by a long copper-frame, glazed canopy, which extends along the entire side of the building.

The auxiliary passenger facilities, such as concessions, rest rooms, toilet facilities, etc., are located along the east and west sides of the main waiting room, occupying space between the waiting room and the outside faces of the building. The facilities provided along the Dartmouth street front include an attractive book store and luncheonette north of the main entrance lobby, and an alcove waiting room, equipped with wall seats and back-to-back settees, on the opposite side of this lobby. The first mentioned of these facilities occupies an area about 35 ft. long by 29 ft. wide, while the auxiliary waiting room is about 40 ft. long by 32 ft. wide.

The toilet rooms, smoking room and women's rest room are grouped together in the southeast corner of the station, to the right of the east entrance lobby, while the northeast corner of the main floor is occupied principally by a parcel checking room, facing on the lobby, and the baggage room, which extends into a short one-story wing fronting on the auto parking space.

Tracks Pass Under Station

The track layout at the new station is the same as that which existed prior to the fire, and consists of two inbound and two outbound main tracks. These tracks, which are on a curve, extend in an easterly-westerly direction under the main body of the station, and are served by two long intermediate platforms. Both of the platforms are of the low type, and are constructed of concrete; one being located between the two inbound tracks and the other between the two outbound tracks. At the present time, those parts of both platforms extending east of the station in the open cut are covered with frame, butterfly-type sheds, and steel and wood sheds are now nearing completion over both platforms west of the station.

Access to the station platforms is gained by four stairways and two elevators in the station building proper, and by two stairways from the rear of the auto parking area on the east side of the station. The stairways in the station are located in the four entrance lobbies and each is eight feet wide and completely inclosed with plate glass in metal framework. The two stairways along the Buckingham street side of the station



Interior View of the Waiting Room Looking Toward the Buckingham Street Entrances



The Northwest Corner of the Waiting Room Showing the Ticket Office and the Luncheonette

serve the inbound platform, while the other two serve the outbound platform. Both of the stairways extending from the rear of the auto parking area to the track level are protected by glazed-in head houses; one of them serves the inbound platform and the other the outbound platform.

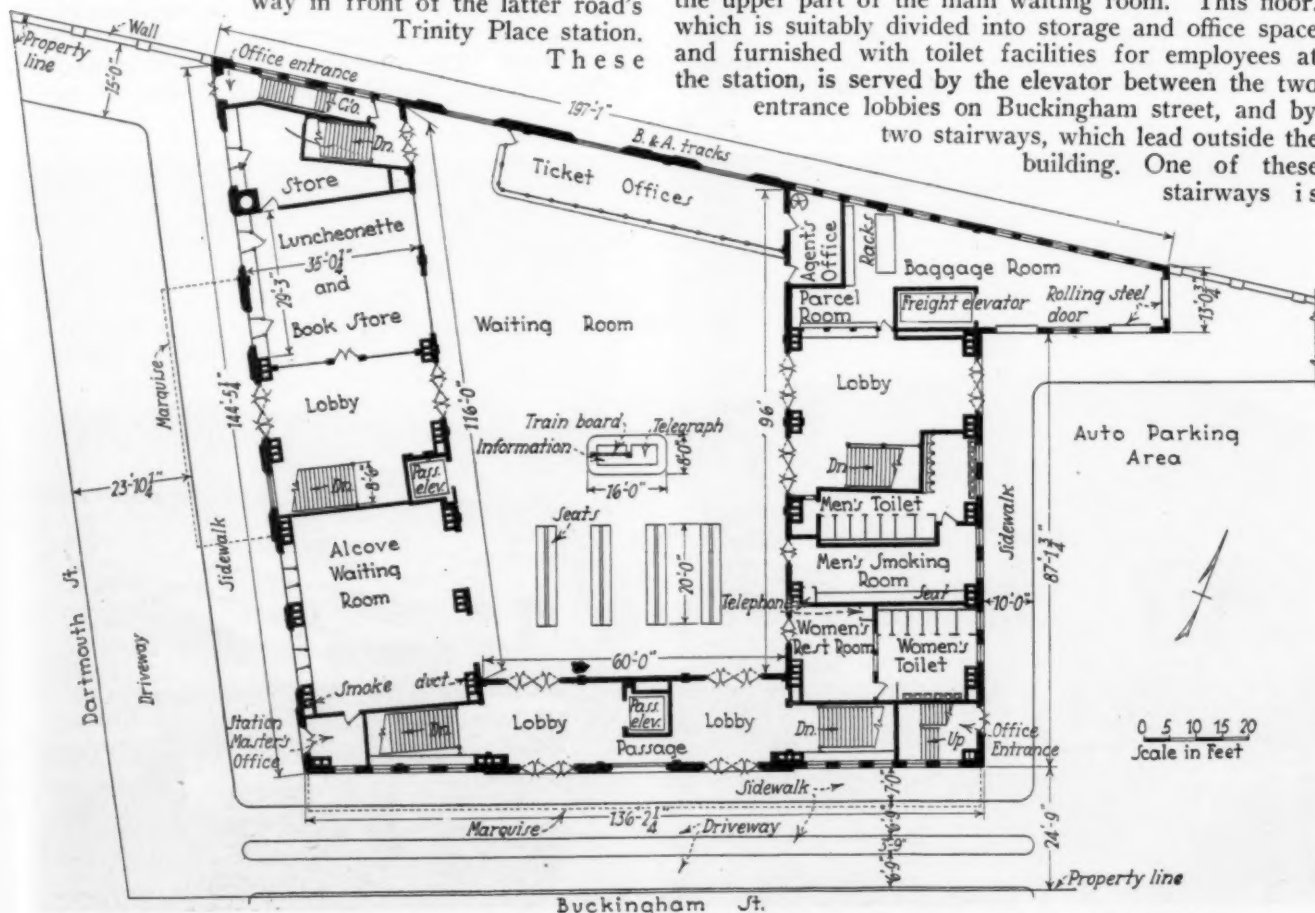
In addition to the four passenger stairways mentioned, another stairway is located in a small lobby in the northwest corner of the station, which leads down to the track level and to a passageway to the platforms of the Boston & Albany on the north side of the station. An overhead steel foot bridge has also been constructed from the auto parking area of the Back Bay station, across the Boston & Albany tracks to a walkway in front of the latter road's Trinity Place station.

These

two facilities are provided as a source of convenience to passengers changing from one road to another at this point.

Of the two elevators at the station, one is located in the Dartmouth street lobby and serves the main waiting room and the outbound track platform, while the other is located between the two lobbies on the Buckingham street side and serves the inbound track platform, the lobbies, and the second floor of the building. A large freight elevator is also provided in the baggage room to handle baggage trucks to and from the track level.

The second floor of the station extends around the east, south and west sides of the building, surrounding the upper part of the main waiting room. This floor, which is suitably divided into storage and office space and furnished with toilet facilities for employees at the station, is served by the elevator between the two entrance lobbies on Buckingham street, and by two stairways, which lead outside the building. One of these stairways is



The Main Floor, Which Has All of the Public Facilities, Extends Directly Over the Station Tracks



The Old Station Was Larger Than the New and of an Entirely Different Style

located in the northwest corner of the building and the other in the southeast corner.

Station Has Pleasing Interior

The most impressive feature of the new station is the character of the interior finish provided in all of the public areas, which, while relatively plain, is pleasing and restful, and one which can be kept clean and sanitary with a minimum of care. The main waiting room has a red quarry tile floor and a bold beam ceiling, broken up by a large rectangular skylight, and is finished throughout with paneled plaster and marble. The ceiling is painted cream white, while the walls are a light green tint faced around the base with a high wainscoting of white Vermont marble streaked with dark green veins. To provide a contrast with the light marble, a dark green Vermont marble with light marking is used for base courses, floor borders and counter tops throughout the room. Adding to the pleasing character of the interior are the dark mahogany settees,

the bronze and plate-glass work above the marble front ticket counters, six large ornamental chandeliers suspended from the ceiling, and three large arched-top sectional windows at the north end of the room.

Decoration throughout the rest of the passenger facilities is fully comparable with that in the waiting room, and in several instances, is similar. The women's rest room is particularly restful and attractive, and is finished with comfortable wicker chairs and chaise lounges. The public toilets are equipped with the most up-to-date sanitary facilities, and are finished with white plaster walls, and with white Vitrolite toilet partitions with mahogany doors. The floors in the toilet rooms, as well as in the four entrance lobbies, are of colorful, non-slip terrazzo.

Smoke Exhaust System is Provided

One of the most effective features about the new station is the ventilation system employed to carry off all of the locomotive smoke and gases from the tracks under the station and the parking area at the east end of the station. In this system, smoke is collected in 12 parallel horizontal ducts concealed in the arch masonry above the track structure, spaced practically equidistant across the full width of the track area. Each of these ducts has openings through the arched roof over the tracks at intervals of about six feet. Smoke collected in these horizontal ducts is carried off above the roof of the station in 48 vertical ducts, which extend up through the side walls and interior partitions at various points to well above the roof of the building.

All of the work in connection with the new Back Bay station, including plans for the building, was carried out under the direction of C. E. Smith, vice-president, Edward Gagel, chief engineer until his retirement on October 1 this year, A. S. Tuttle, construction engineer and W. T. Dorrance, designing engineer of the New Haven. The contractor on the new station was the Treddenneck-Billings Company, Boston, Mass.

* * * *



The New Canadian Pacific Piers at Vancouver, B. C.

Railway Business Association Urges Solicitation of Public Good Will

*Meeting receives report on railway manufacturing—
Resolutions ask reorganization of Interstate
Commerce Commission*

THE Railway Business Association, at its twenty-first annual meeting at the Stevens hotel, Chicago, on November 21, commended to the railways a policy of unabated vigilance to develop and maintain solicitude for public good will, at the same time assuring the railways that satisfaction with their service is nation-wide and that the attitude of shippers toward them is "animated by friendly forbearance." The association, through resolutions, also warned the railways that there should be an organized observation of rate levels jointly by the carriers, the shippers and the Interstate Commerce Commission to assure an adequate income for the further advancement of railway service. Other matters proposed by the association included a reorganization of the Commission and increase of the salary paid its members; an investigation of reported impending train-length limit legislation; and an endorsement of President Hoover's measures for steadying the present business situation.

At the annual dinner on the same date the attendance was greater than at any previous dinner of the organization, totaling 1746 persons. A report of this function, along with an abstract of the address of the principal speaker, Lawrence A. Downs, president of the Illinois Central, appeared in *Railway Age* of November 23. A portion of the business session was given over to a discussion of railway budgeting. Abstracts of the two addresses on this subject, one by C. E. Johnston president of the Kansas City Southern, on "Budgeting of Improvement and Maintenance Work as Applied to the Kansas City Southern" and the other by Elmer T. Howson, western editor of *Railway Age*, entitled, "Railway Budgets an Aid to Orderly Spending," will appear in an early issue.

The association re-elected its president, Alba B. Johnson of Philadelphia, Pa., and its seven vice-presidents and the president re-appointed nine members of the general executive committee. George H. Houston, president of the Baldwin Locomotive Works, Philadelphia, and G. E. Scott, president of the American Steel Foundries, Chicago, were appointed new members of the general executive committee.

An abstract of the report of the general executive committee and the resolutions follows, while a report on manufacturing in railway shops appears on another page of this issue.

General Executive Committee Report

Our chief task this year, set by the 1928 platform, was the mobilization of business men and associations for a revival of solicitude about the railways' financial future. Our standing assignment to resist legislative rate-making involving especially the bills repealing the Pullman surcharge.

For many years a coalition of organizations of which ours has perhaps been the most persistent has labored

for the relinquishment of appeals from the Commission to Congress in rate cases. So far as involves industry and commerce, it seems beyond question that this work has brought results. Replies from shippers on the Pullman surcharge disclosed that industrial and commercial executives, officers of bodies maintaining traffic bureaus and shippers' traffic managers are all but unanimous in their insistence that Congress shall keep its hands off rates and that except where jurisdiction is denied or invasion of constitutional rights is alleged, when appeal is to a court of law, decisions of the Interstate Commerce Commission shall be regarded as subject to review by the Commission itself alone. The percentage of replies to those addressed was high. The expressions were spontaneous, vigorous and clear. In any conferences on the conservation of revenue, business evidently will drop rate legislation from the picture. This is abandonment of log-rolling for submission to judgment by an umpire. It is an adoption of the general welfare as paramount. It means that competitors in rate controversies have confidence in a fair deal as among themselves from the regulatory agency and will be influenced by an atmosphere of accommodation when called upon to make immediate sacrifices for a general situation in which all have a stake.

Progress much less advanced was manifest in the matter of conserving railway income. Our Pullman surcharge letter set forth that phase, emphasizing as an argument against legislative rate-making that the Commission could be held responsible for the financial results of rate regulation as a whole whereas Congress could not. On this aspect the same shippers who denounced legislative rate-making made no response whatever.

With this correspondence before us we approached shippers in October on the main project of revenue conservation. We requested names of agricultural, industrial and commercial shippers, whether executives or traffic managers, believed to be interested. This was addressed to the National Industrial Traffic League and the chairman of each regional Shippers' Advisory Board. Unlike the League these boards take in agriculture. Farmers and their organizations have as yet made little progress toward giving up appeals from the Commission to Congress in rate controversies or advancement toward acceptance of responsibility as shippers for co-operation in foresighted rate-making. The work of the Advisory Boards, however, has given their members an opportunity for understanding the relation between adequacy of car supply and the financial ability of the railways to maintain car supply and move freight. The membership of the Boards, therefore, though the Boards as such abstain from discussing rates, seem a promising source of farm as well as industrial leadership.

Copies of the request for names went to the same

shippers as the Pullman surcharge letter. Without waiting for names from the League or the Boards we asked heads of enterprises active in civic affairs whether they would confer if invited. The League Executive Committee has been considering our request this week. Some Shippers' Board chairmen promise detailed responses. One of them declared for having the boards deal with rates as they deal with car supply. Numerous industrial executives pledged co-operation. On the whole, however, those giving encouragement are a small nucleus, the greater part of the replies questioning the need to observe revenue or asserting that income at the moment is or is about to be adequate or specifying ways in which railways may improve practice in rate-making or otherwise. Many, perhaps most, of the executives referred our letter without personal acknowledgment to their traffic managers, some of whom take our approach as reflecting on them. In short, we have ample new proof of business men's over-confidence in the railways' financial future and of their doubt that foresight about rates needs to be organized but there are shippers and traffic managers in every region who are ready to begin discussing the subject with their neighbors.

Our next step is to publish a digest of the correspondence. This we plan to do as soon as replies cease coming.

Resolutions

I

Satisfactory Service and Public Good Will

Satisfaction with railway service is nation-wide. Our heavy mail from shippers in every region and in every business is free from criticism of transportation. Where there are signs that discussion will now focus more largely on phases other than the handling of cars the shippers' approach seems animated by friendly forbearance. Absence of antagonism is due not alone to the excellence of railway performance but to the spirit of accommodation systematically cultivated in the railway traffic and operating departments, which deal directly with shippers and passengers. We commend to railway managers unabated vigilance to develop and maintain solicitude for public good will in all departments.

II

Shippers and Railway Income

Railway service having attained a new American standard, no national problem is more important than the further advancement of that criterion and continued progress for operating economy. An indispensable requisite is railway income that shall sustain and quicken the flow of investment. This demands competent observation of rate levels, taken together with other factors as bearing on the sufficiency of income. Such observation at present is sporadic and haphazard. It lacks yardsticks. It is not organized by the railways, by the shippers or by the Interstate Commerce Commission. We renew our appeal to these groups to install co-operatively the permanent study of revenue and income tendencies. Some railways are now more definitely endeavoring to keep financial results in view when considering rate adjustments. This standpoint should prevail with all roads. To shippers we have lately suggested an exchange of ideas on methods for organizing such observation. Replies from throughout the union, though as a whole promising leadership, demonstrate that the business world is over-confident of the railways' financial future and unconvinced that system is imperative if observation of revenues is to reveal at all times the situation as to railway preparedness. The business world generally can be brought to an appreciation of this need and a willingness to join in trying to meet it if shippers already persuaded exert their influence. To facilitate discussion by them is the work undertaken by the Railway Business Association. We shall pursue it with persistent vigor.

III

The Interstate Commerce Commission

Opinion is widespread that the responsibilities and functions of the Commission deserve re-examination, re-defi-

nition and reorganization. Congress has bills aimed to relieve the Interstate Commerce Commission. The Commission gains nothing in prestige and influence and the decisions lose weight when this tribunal retains jurisdiction over duties which it delegates. Statutory authority should descend directly upon the official who exercises it. Equally in its character of a court adjudicating citizens' right the Commission can best strengthen its command of the public confidence by rendering judgment as an undivided bench, asking for restriction of its scope if necessary to prompt discharge of its calendar. If too heavy, the work can be reduced. At a stroke an enormous load could be thrown off by repeal of the Hoch-Smith resolution. A public agitation capable of ending that calamitous folly might put a permanent stop to legislative rate-making. Whether through enactment, through colloquy in confirmation proceedings or through personal solicitation, a member of Congress who would seek to influence the Commission against its judgment would defeat justice and place regulation itself in jeopardy. We renew our recommendations for making service on the Commission more attractive. The salary, \$12,000, is niggardly for men called upon to decide issues involving millions of people and billions of property. Presidents who nominate and senators who confirm should observe as of course the tradition that no commissioner's opinions or judgments, if he is otherwise fit, will bar his reappointment.

IV

Train Length Legislation

It is reported that the Arizona law limiting trains to 70 cars will be urged by labor organizations upon the legislatures of other states. Any plea that train length is dangerous to railway employees should be carefully investigated. Shorter trains mean more trains, more employees and greater expense to the public. Only upon tangible evidence of humanitarian grounds should law-making bodies obstruct mechanical progress for operating economy essential not alone to our low freight rates but to the maintenance of the present high railway rate scale.

V

Measures for Steadying Business

We heartily endorse the measures proposed by President Hoover for steadying the business situation. Though the cut from 12 to 11 per cent in the case of corporations will redress only in part the inequity of the present burden as between corporate and other incomes, the suggested reduction will make available a large sum for sustaining trade and for investment in construction work. Conservation of public and corporate financial resources and credit for expenditure in business recessions has been a standing plank in our platform for 21 years. We commend the President's suggestion for enlarged construction programs by the federal, state, county and city governments, railways, public services, industry and business.

* * *



On the T. R. R. A. Tracks at East St. Louis, Ill.

Roads Proceeding with Confidence

*Advise President of hope to increase capital
and maintenance expenditures*

NOT only are the railways proceeding with confidence in the future business prosperity of the country, with the hope and expectation of keeping on at least a normal basis in their future capital and maintenance expenditures, but a movement to increase them is being actively pressed, according to a message from R. H. Aishton, chairman of the executive committee of the Association of Railway Executives, to President Hoover, which was made public at the White House on November 22. In this message Mr. Aishton conveyed to the President the response of the railway executives meeting in Chicago to the views expressed to a group of them who had conferred with him earlier in the week in connection with the President's efforts toward a preservation of the recent high level of business activity.

In making public the telegram the White House statement added: "This program will assure larger employment in the railway equipment industry next year than in 1929 and a very substantial addition to the railway demands for steel." Mr. Aishton's message follows:

"The railway executives who were called into conference by you at Washington last Tuesday have, as you requested, communicated to their associate executives at the meeting held today in Chicago, the views you expressed to them in respect to maintaining stability and promoting prosperity in business and I am authorized to give you the assurance of their very sincere and earnest spirit of cooperation in the work you have undertaken. These executives in their associations represent approximately 97 percent of the total operating revenues and approximately 91 percent of the total railway mileage in the United States. They realize the national importance to the social and economic well being of the country of business stability and prosperity and their duty so to discharge their transportation responsibilities as to make their service harmonize with the wisest and most intelligent judgment and plans for the public welfare.

"The program of capital expenditures already arranged for is impressive, amounting up to October 1st of this year to \$1,247,792,000 for Class I railways, of which \$673,972,000 remained on that date to be expended. This figure of \$1,247,792,000 compares with a capital program of \$902,307,000 for the same period of 1928, an increase of over 38 per cent. The number of freight cars on order on October 1st was 29,481, a greater figure than on the corresponding date in any year since 1924 and this number has been increased as of November 1st to 33,642, which is an increase of 27,561 compared with the same date a year ago. On October 1st there were 354 locomotives on order, as compared with 113 on the same date in 1928 and 134 in 1927. There are also now on order approximately one and one half million tons of steel rails for delivery beginning early in 1930. It is estimated that this will be increased by orders for approximately one million additional tons which would make the rail deliveries in 1930 approximately 2,500,000 tons and substantially in excess of last year.

WASHINGTON, D. C.

"Not believing that there is anything in existing conditions to require it the executives have no purpose whatever to reduce or abandon any part of this program. They are proceeding with confidence in the future business prosperity of the country and in reliance upon the full cooperation of industry in all its branches equally interested under these circumstances. It is their hope and expectation to proceed on at least a normal basis in their future capital and maintenance expenditures. A movement to increase them, however, has been started and is being actively and intelligently pressed forward.

"In respect to your desire to organize a committee of contact for the various industries and with a view of harmonizing and stimulating constructive work, resolutions were adopted at this meeting designating me as chairman of the executive committee of the Association of Railway Executives, to act for the railways as a means of keeping them in touch with other industrial groups and with developments as they occur; and I was requested to assure you of the willingness of the executives to assemble and make serviceable, through competent agencies, current figures with respect to capital expenditures and other available information that may be desired."

Other Conferences

President Hoover continued his program of conferences with a group of industrial and business leaders and a group of labor executives, including those of the four railway brotherhoods, on November 21, a group of representatives of the construction industries on November 22 and representatives of agriculture on November 25. Secretary Lamont, of the Department of Commerce and other members of the Cabinet, as well as officers of the Chamber of Commerce of the United States, also attended. Representatives of the public utilities group held a preliminary conference of their own in New York on November 26 before meeting with the President.

After the conferences with the industrial and labor leaders the President announced that he had been authorized by the employers present to say that they will not initiate any movement for wage reduction and that it was their strong recommendation that this attitude should be pursued by the country as a whole, so that consuming power may be maintained, and by the labor leaders that no movements for wage increases should be initiated beyond those already in negotiation. Henry Ford took occasion to announce after the meeting that the Ford company proposed a general wage increase, and he gave out a statement saying that there had been a decline in business even before the market break.

The announcement following the industrial conference was in part as follows:

"The conference this morning of 22 industrial and business leaders warmly endorsed the President's statement of last Saturday as to steps to be taken in the progress of business and the maintenance of employment. The general situation was thoroughly canvassed,

and it was the unanimous opinion of the conference that there was no reason why business should not be carried on as usual; that construction work should be expanded in every prudent direction both public and private so as to cover any slack of unemployment. It was found that a preliminary examination of a number of industries indicated that construction activities can in 1930 be expanded even over 1929. * * *

"It was considered that the absorption of capital in loans on the stock market had postponed much construction and that the flow of this capital back to industry and commerce would now assist renewed construction.

"It was the opinion that an indirect but very substantial contribution could be made to the extension of credit for local building purposes and for conduct of smaller business if the banks would freely avail themselves of the rediscount privilege offered by the Federal Reserve Banks.

"The meeting considered it was desirable that some definite organization should be established under a committee representing the different industries and sections of the business community, which would undertake to follow up the President's program in the different industries.

"It was considered that the development of co-operative spirit and responsibility in the American business world was such that the business of the country itself could and should assume the responsibility for the mobilization of the industrial and commercial agencies to these ends and to cooperate with the governmental agencies."

The members of the group agreed to act as a temporary advisory committee with the Secretary of Commerce, who was authorized to add to the committee. Julius Barnes, chairman of the Chamber of Commerce was asked to create an executive committee from members of this group and the various trade organizations who could assist in expansion of construction and maintenance of employment. A definite canvass will be made of the different industrial fields to develop the amount of such construction.

General Conference Called

The Chamber of Commerce of the United States in carrying out the suggestion of the industrial group has called a conference of representatives of important industrial and trade groups to be held at the Chamber's headquarters in Washington on December 5, for the purpose of considering voluntary and cooperative action between various lines of industry and between business and government agencies in aid of business stabilization and the preservation of the recent high level of business activity.

This conference, which will be opened by President Hoover, will also consider the formation of a business council for continuing study of business conditions.

From 150 to 250 business leaders were asked to attend, prepared to report the strong and weak spots in their particular fields. The Chamber's board of directors has been called to meet in Washington on December 5 and 6.

"This conference," says the letter of invitation, "will be opened by President Hoover and is the outgrowth of a conviction on his part that American business is so organized as to be fully capable of mobilizing its forces in cooperation with government.

"The preliminary conferences which the President has held this week with individual business leaders indicate a situation that has no fundamental weakness.

Indeed the absence of weak factors and the presence of strong ones constitute tribute to the high standards and the wise practices of American business men. There are no burdensome stocks of commodities, and this is owing to far-sighted manufacturing plans and to prudent merchandising efforts, aided by striking efficiency in transportation. With no commodity price inflation there is no menace of inventory losses. There is a strong banking situation with enlarged reservoirs of credit available for industry and commerce on reasonable terms. Weak spots which have heretofore existed in American industry are showing signs of improvement.

"American industry generally is approaching the close of one of the most active and prosperous years in its history. The problem now is, fortunately, not one of starting a stalled machine, but of facilitating a present momentum on which employment and earnings and buying power have arisen to high levels. It is our belief that proven ability in practical business leadership can define weak spots and bring forward remedial measures, and thus justify a high spirit of confidence and enterprise.

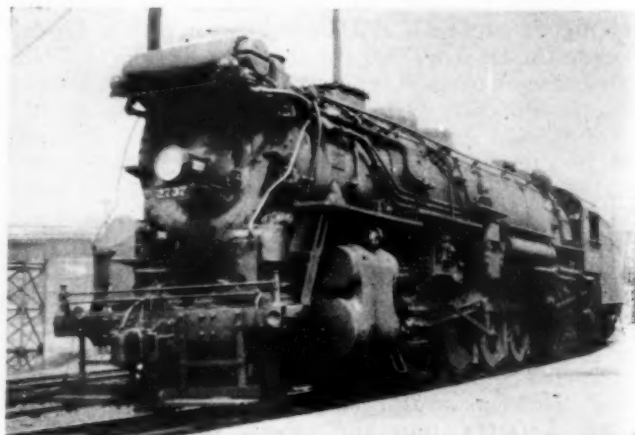
"In preparation for practical steps based on accurate information we would like to have an analysis of the strong and weak spots in your own field, both as to the present situation and the next six months."

On November 23 President Hoover addressed a telegram to the governors of the 48 states stating that one of the largest factors that can be brought to bear in the present situation is that of the "energetic yet prudent pursuit of public works by the federal government and state, municipal and county authorities" and that "It would be helpful if road, street, public building and other construction of this type could be speeded up and adjusted in such fashion as to further employment." He therefore asked that they canvass the state, municipal and county programs and give him such information as they can as to the volume of expenditure that can be prudently arranged for the next 12 months and for the next six months. The federal government, he said, will exert itself to the utmost within its own province and he would like to have the co-operation of local officials in the same direction.

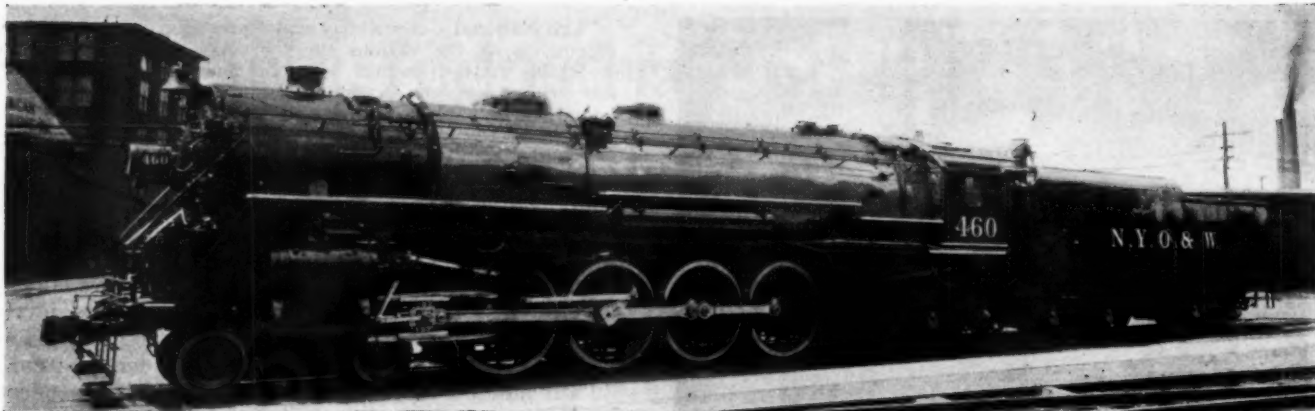
Secretary Lamont has been asked to take in hand the detailed measures of co-operation which may arise in this matter.

This telegram elicited an immediate response and numerous replies were received telling of plans for speeding up and expanding local programs of public works.

* * *



A Heavy 4-8-2 Type Locomotive on the New York Central



New York, Ontario & Western 4-8-2 Type Locomotive Built by the American Locomotive Company

Ten 4-8-2 Type Locomotives for the N.Y.O. & W.

*Purchased for traffic requiring high sustained tractive
force at speeds—Tractive force, 60,620 lb.*

THE New York, Ontario & Western recently received ten 4-8-2 type locomotives from the American Locomotive Company, the general design characteristics of which are the same as the Mohawk 4-8-2 type locomotives ordered in 1925 by the New York Central from the same builders. The cylinders have a diameter of 27 in. and a stroke of 30 in., and the boilers operate at a pressure of 225 lb. The diameter of the driving wheels is 69 in. The maximum rated tractive force for these locomotives is 60,620 lb. Each of the ten locomotives is equipped with a

Principal Dimensions, Weights and Proportions of the New York, Ontario & Western 4-8-2 Type Locomotives

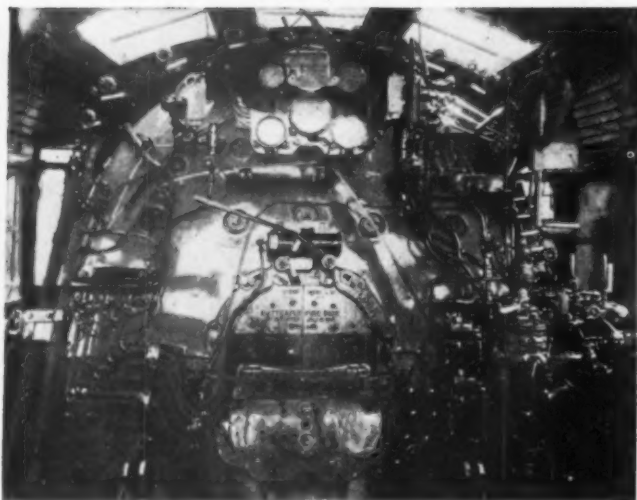
Railroad	New York, Ontario & Western
Builder	American Locomotive Company
Type of locomotive	4-8-2
Service	Fast freight
Cylinders, diameter and stroke	27 in. by 30 in.
Valve gear, type	Baker
Valves, piston type, size	14 in.
Maximum travel	9 in.
Outside lap	1 1/2 in.
Exhaust clearance	0 in.
Lead in full gear	1/8 in.
Weights in working order:	
On drivers	239,500 lb.
On front truck	61,000 lb.
On trailing truck	59,500 lb.
Total engine	360,000 lb.
Tender	231,900 lb.
Wheel bases:	
Driving	18 ft.
Rigid	12 ft.
Total engine	42 ft.
Total engine and tender	80 ft. 7 3/4 in.
Wheels, diameter outside tires:	
Driving	69 in.
Engine truck	33 in.
Trailing truck	45 in.
Journals, diameter and length:	
Driving, main	12 in. by 14 in.
Driving, others	11 in. by 13 in.
Engine truck	7 in. by 12 in.
Trailing truck	9 in. by 14 in.
Boiler:	
Type	Conical
Steam pressure	225 lb.
Fuel, kind	Soft coal

Diameter, first ring, inside	82 7/8 in.
Firebox, length and width	120 1/4 in. by 90 3/4 in.
Combustion chamber, length	51 in.
Tubes, number and diameter	40—2 1/4 in.
Flues, number and diameter	199—3 1/2 in.
Length over tube sheets	20 ft. 6 in.
Grate area	75.3 sq. ft.
Heating surfaces:	
Firebox and combustion chamber	318 sq. ft.
Arch tubes	35 sq. ft.
Tubes and flues	4,202 sq. ft.
Total evaporative	4,555 sq. ft.
Superheating	1,931 sq. ft.
Comb. evaporative and superheating	6,486 sq. ft.
Tender:	
Water capacity	12,500 gal.
Fuel capacity	16 tons
Wheels, diameter outside tires	36 in.
Journals, diameter and length	6 1/2 in. by 12 in.
Rated tractive force	60,620 lb.
Rated tractive force of booster	11,250 lb.
Combined tractive force at starting	71,870 lb.
Weight proportions:	
Weight on drivers ÷ total weight engine, per cent.	66.5
Weight on drivers ÷ tractive force	3.95
Total weight engine ÷ comb. heat. surface	55.5
Boiler proportions:	
Tractive force × diam. drivers ÷ comb. heating surface	646
Firebox heating surface ÷ grate area	4.7
Firebox heating surface, per cent of evap. heating surface	7.74
Superheating surface, per cent of evap. heat. surface	42.4

Franklin trailer truck booster, which develops an additional tractive force at starting of 11,250 lb., which provides a total starting tractive force of 71,870 lb. The weight carried on the drivers is 239,500 lb., the factor of adhesion being 3.95.

In the construction of these locomotives, the builders followed the Mohawk type design as far as possible, modifying the design only to use railway company standards wherever possible, and to make a few minor changes that the railroad desired.

The line over which the new locomotives operate has a number of sharp curves. Alco spring controlled lateral motion device was applied to the front driving wheels, in addition to a geared roller-resistance engine truck, to assist the engine in negotiating these curves. Other special equipment applied to these locomotives are the Alco power reverse gear, Standard type BK



The Cab of the N. Y. O. & W. 4-8-2 Type Locomotive

stoker, with the stoker engine located on the tender; Elesco exhaust steam injector, type E super-heater, and locomotive valve pilots. The engine bed, cylinders and air-compressor brackets, are of General Steel Castings Company manufacture, and are cast integral with the bed casting.

The tender and tender-truck frames are also General steel castings. The tenders are carried on four-wheel equalized trucks, and have a capacity for 12,500 gal. of water and 16 tons of coal. Other dimensions, weights and proportions are given in the table.

Railroad Y. M. C. A. Triennial Conference

THE eighteenth tri-ennial conference of the Railroad Young Men's Christian Associations of North America, held at the Mayflower Hotel, Washington, D. C., on November 20, 21 and 22, was an unusually successful affair in point of attendance and in the character of the program. The attendance was over 400, including many railway officers.

At the concluding session on November 22 an important step in the history of the conference was taken in the adoption of a resolution proposing the formal organization of the conference as a Railroad Assembly. The resolution, transmitted to the Transportation Committee, from a special group of railroad men from large city associations, and approved at the general meeting, was as follows:

Whereas, The Triennial Conferences and similar gatherings have revealed the community of interest, and the growing bond of brotherhood between the Railroad Associations, and,

Whereas, The impending consolidations and changes in the railroad corporations will inevitably bring these organizations still closer together; and,

Whereas, The National Constitution in Article III, Section 3, inferentially encourages the different types of Associations to organize in Assemblies;

Therefore, Be it RESOLVED:

That we hereby petition the National Council to authorize the formation of a Railroad Assembly, to meet at the call of the Transportation Committee, "to formulate plans, policies and programs" for the improvement and extension of the Railroad Association work in North America.

And, be it further RESOLVED: That the Transportation Committee shall constitute the Executive Committee of the said Railroad Assembly.

Article III, Section 3, reads as follows:

"The National Council may make provision for auxiliary assemblies of the various types of Associations to meet preferably in conjunction with, or immediately prior to, the meetings of the National Council. Such Assemblies may formulate plans, policies and programs for work in their respective Departments. All findings shall be subject to approval by the National Council."

The program was constructively built with a definite final objective. The afternoon of November 21 was devoted to a series of group discussions under the general direction of A. S. McAlister and J. E. Sproul, on the subjects of: health and recreation service; educational work; religious work; the human relations development; work with younger railroad men; buildings and equipment; secretarial and committee leadership; constitution and by-laws and organization of independent branch and provisional associations; motor transport service; air transport service; continental membership campaign; and special group railroad men from large city associations. These subjects were dealt with in twelve group meetings, attended by thirty or forty each, lasting two hours, in which individuals were given an opportunity and encouraged to express themselves and on the following day the chairman of the respective groups presented concise five-minute reports of the results or conclusions reached, most of which offered concrete suggestions for improving or broadening the scope of the work of the various local associations. These were followed by a general discussion and a summary by J. E. Sproul, secretary of the program section of the National Council, Y. M. C. A.

On the opening day, following the luncheon meetings of group discussion leaders and officers and advisory committee, there was an introduction and fellowship service led by George W. Campbell and Howard Jackson. An address of welcome was given on behalf of B. R. Tolson, manager of the Washington Terminal Company, followed by an address by Fred W. Ramsey, general secretary, National Council. At the evening session Dr. Henry H. Crain, pastor of the Elm Park Methodist Episcopal Church, Scranton, Pa., gave an address on "The Supremacy of Human Values." At the morning session on November 21 after a song and fellowship service, G. K. Roper, senior secretary of the Transportation Department Y. M. C. A., addressed the convention on "The Young Men's Christian Association in the Transportation Industry." Roy V. Wright, managing editor of the *Railway Age*, spoke on "Organized Programs and Activities;" A. H. Lichty, state secretary, Y. M. C. A., Richmond, Va., on "Secretarial and Committee Leadership;" and John F. Moore, retired associate general secretary, International Committee, Y. M. C. A., New York City, on "Buildings and Equipment."

At the banquet session held on November 21, Norman Stewart, machinist apprentice, Michigan Central, St. Thomas, Ont., president, 1930 Younger Men's Conference, spoke on "Work with Younger Railroad Men," and Dr. Charles A. Eaton, welfare director, General Electric Company, spoke on "Human Values in the Transportation Industry." At the closing luncheon on November 21 there was an address by A. E. Roberts, secretary, Home Division, National Council, Y. M. C. A.

The President was to have received the delegates at the White House on November 21 but this was called off because the President was engaged in a series of conferences with business leaders on the business situation. After the conference sessions the delegates were taken on a sightseeing trip through the city of Washington and nearby points of interest. Music was furnished at the various sessions by the Pennsylvania Keystone Quartette and the B. & O. Glee Club.

National Industrial Traffic League Meets at Chicago

*Accounting and consolidation through holding companies
among important subjects considered*

RAILWAY accounting, the consolidation of railroads, holding companies and legislation were among the 85 subjects given consideration at the twenty-third annual meeting of the National Industrial Traffic League held at the Palmer House, Chicago, on November 20 and 21. The sessions, over which President W. H. Day, manager of the transportation department of the Boston Chamber of Commerce, presided, were attended by over 450 representatives of industry in all parts of the United States. The registration was equivalent to one half of the aggregate membership, which totals 900 and which represents 500,000 manufacturing and shipping institutions.

Re-election of Officers

In keeping with a tradition that has prevailed for several years, the presiding officers were re-elected to serve for a second year. Those who will continue in office include: President W. H. Day; Vice-President Herman Mueller, traffic director of the St. Paul Association of Commerce; treasurer, Roy W. Campbell, manager of the traffic department of the Butler Paper Corporation, Chicago; and executive committee chairman, J. M. Belleville, general traffic manager of the Pittsburgh Plate Glass Company.

At the morning session of the first day, Clyde B. Aitchison, commissioner of the Interstate Commerce Commission spoke on The Association of Practitioners Before the Interstate Commerce Commission—Its Aims and Objects. Mr. Aitchison outlined a code of ethics for practitioners, in which he included 35 canons similar to those of the code of the National Bar Association but which are designed to govern the conduct of those who practice before the commission. He also reviewed the work of that body, saying that it now does more work in a year than it did in the first 20 years of its existence. In commenting upon the restrictions of the commission he said that much of the congestion is due to petty and ill prepared cases and a lack of skill on the part of practitioners.

If the commission had authority to delegate minor cases, he continued, a more thorough and rapid consideration could be given major problems such as consolidation procedure. Shortened procedure cases occupy a great deal of the commission's time and money and in many instances these could be handled by a justice of the peace, at a cost far below the \$36,000 represented by the salary of the members whose time these cases now occupy. Other examples of matters that could be delegated involve minor suspension cases, finance matters, particularly minor certificates of convenience and necessity, the approval of security issues, recaptive proceedings and some of the 1,800 attempted valuations, many of which have been reviewed several times.

On the evening of November 20, the League held its annual dinner, at which Charles Barham, vice-president and traffic manager of the Nashville, Chattanooga &

St. Louis, and Major Norman Allan Imrie, head of the department of history of Culver Military Academy, were the principal speakers. The former spoke on Forgotten Scenes in a Great Drama, while the latter's subject was An Adventure in International Good Will.

Spring Meeting May Be Held

The executive committee of the League convened on November 18 and 19 to consider various subjects before they were submitted to the general meeting on the following two days. This committee decided that in view of the many transportation problems that will come before the seventy-first session of Congress which convenes on December 15, it may be advisable to hold a spring meeting. If the action of Congress necessitates a mid-year meeting, the date will be fixed by the executive committee and the place will be Washington if conditions demand a location close to activities. If the meeting is not held in that city, the spring meeting will take place at Birmingham, Ala. The committee also decided that the 1930 annual meeting shall be held at New York on November 19 and 20.

A committee on aeronautics was appointed by the executive committee. The jurisdiction of this new body will cover all forms and divisions of air transportation, excepting mail rates.

Railway Accounting Situation Described

Although the report of the Special Committee on Railway Accounting Rules was one of progress, the committee summarized the outstanding features of the proposed report of the Interstate Commerce Commission, written by Commissioner Eastman and issued on August 15, 1929. The features included in the summary were: One, the disapproval of the recommendation for the elimination of analytical or primary accounts in which investment in carrier property is now recorded, and the substituting of only three subdivisions, namely; road, equipment and investment suspense. Two, the disapproval of the recommendation that the minimum amount to be charged to investment account be raised from \$100 as at present to \$200. Three, possible disapproval of the recommendation that the cost of replacing, in kind, property retired and replaced with other property of like purpose, should be included in operating expense. Four, the disapproval of the recommendation for the elimination of the credit to operating expenses for transportation for the benefit of the investment account, "which would increase operating expenses and decrease the charge to capital account, although the carriers claim the cost of such transportation as a part of the present value of their property." Five, the approval of the recommendation for the elimination of separate accounts for original road, original equipment, road extensions, fixed improvements, and additions and betterments. Six, the disapproval of the recommendation for the elimination of the requirement that carriers report their plans for

accruing revenues which may have been earned but not paid over. Seven, the disapproval of the recommendation for the elimination of the pending requirement that revenue derived from heating and refrigeration services be set up as revenue instead of being credited to train supplies and expenses, as at present.

In commenting upon these features the committee said: "From this brief summarization of the outstanding features of the proposed report, it may be perceived that all recommendations of the railway accounting officers which would restrict the analyses of railway accounts have been disapproved. The general drift of the accounting officers' recommendations, indicating clearly their intention to make railway accounts more opaque than at present, was one of the things which inspired our interest in this matter; consequently there is a satisfaction in noting the failure of all recommendations having a retrogressive effect.

"Your committee never entertained the idea that the commission would find it expedient to adopt outright that outline of a system of accounting which we submitted to it. Therefore we feel no disappointment in the proposed finding that the record does not justify prescribing a system of continuous routine cost accounting with accompanying statistical requirements. The most that your committee hoped to accomplish was to bring to the commission's favorable attention the need for injecting cost accounting principles into railway accounting procedure to the end that eventually, and desirably as soon as possible, the accounts should lend themselves to analysis and permit the cost of service to be arrived at with approximate correctness. We have believed that to underlay the prescribed rules and regulations with cost accounting principles would necessarily result in the exclusion of improper charges from operating expenses, and the establishment of the proper basis for comparing the costs of providing service and the product of the rates charged therefor. The finding that the record reflects clear warrant and need for further intensive research into the subject and, that it should be carried on under the auspices of the commission, we may accept as evidence that we have attained our present objective. Your committee feels that its effects have been worth while and that they promise later fruition of inestimable advantage to shippers and railroads alike.

"Following the receipt and study of the proposed report, your committee met with counsel and others interested, and after discussion concluded to file a brief approving the proposed report in all respects and particularly as concerns the recommendation that a special committee be appointed to examine into and submit its conclusions concerning the practicability of adopting accounting procedure which would make possible the ascertainment of service cost, and to urge an early appointment of such a committee under conditions which would enable it to pursue and complete its work with all possible diligence."

Depreciation Charges

In discussing depreciation charges on steam railroads, docket 15,100, the committee mentioned the principal items in the proposed report of August 15, 1929, to which it took exception and which, it said, "were of outstanding importance because of the possibilities they offered to inflate railway operating expenses and unduly and unreasonably increase the apparent cost of railway service" and cited the objections which it had already made.

The committee, in conclusion, said: "The recom-

mended findings of the proposed report do not provide a satisfactory solution of the depreciation problem, and we believe sufficient opposition will develop to prevent its adoption by the commission. Anticipating that situation, we have suggested in our brief that the depreciation problem, which after all is part and parcel of the general accounting problem might also be referred to a special committee for further research, study, and the development of a workable plan."

Desirability of Control Through Holding Companies Questioned

The Legislative Committee reported that while efforts were made sponsoring legislation covering the consolidation of railroads, it became evident soon after the session began that the time of Congress would be absorbed by the appropriation bills, the Kellogg treaty, and cruiser bill and certain uncontested minor measures. No hearings were held on the subject of transportation legislation, except two very brief hearings on railroad consolidations. When it became known that a special session would be called for the Spring a further effort was made to get railroad legislation before Congress for consideration at the special session, but the administration took the position that the special session should be practically limited to consideration of farm and tariff legislation and no agreement was obtained to go into railroad legislation. The next session of Congress, convening in December, will not be limited to an early adjournment date as was the last session, and the prospects are that it will be a long and drawn-out session and that opportunities will be afforded to consider various kinds of railroad legislation and legislation affecting the Interstate Commerce Commission.

In considering consolidations, the committee recommended that the League oppose any provisions requiring the commission to fix a plan for the consolidation of all railroads into a limited number of systems and approve acquisition through condemnation only in cases where there is an outstanding minority interest. During the general discussion of consolidation, the acquisition of control through holding companies such as the Pennroad Corporation and the Alleghany Corporation were considered. It was felt that if the unification of financial control is permissible through holding companies the carriers can accomplish that which has been heretofore discouraged. Some members expressed the opinion that there is a need for legislation preventing this indirect unification but the legislative committee felt that to bring the matter before the Senate at this time would be futile since the Senate favors investigations and that such a procedure would prolong the practice instead of resulting in proper and prompt legislation.

Another subject upon which the committee acted was the proposal that the law authorize the commission to designate a commissioner or employee or board of employees to handle certain classes of matters and to make decisions in the name of and as the act of the commission. The committee recommended that legislation along the lines of Congressman Summers' bill, H. R. 16,883, be favored, provided it will not be availed of for the purpose of disposing of contested formal docket cases involving the readjustment of rates for the future and provided, further, that a petition for a review of the action of a commissioner or a board of employees will go to a division of the commission or to the whole commission for determination as to whether or not such review will be granted.

The committee said that there has been a growing

insistence on the part of shippers that they should be compensated for the interest on their money when they sustain damages for which the carriers are liable. The policy of the carriers is not uniform, some of them allowing interest on reparation or damage claims and others declining to do so except where required by local laws. The committee was of the opinion that where claims are not settled with the greatest dispatch the carriers should pay interest from the date the loss was sustained and recommended that the League favor legislation requiring carriers to pay interest on loss and damage claims where such claims are not settled within 30 days from the time they are filed with a carrier.

Regulation of Express Companies

The committee reported that owing to the fact that various provisions of the Transportation Act giving the commission jurisdiction over the service rendered and over the establishment of routes do not appear to apply to express companies, there is a situation wherein the express companies, being owned by the railroads, may escape certain regulatory authority to which the railways are subject. Many shippers are concerned about the service that may be rendered. Where it makes no difference to the owners of the Railway Express Agency, Inc., whether the business moves by express or by freight, there will not be the same incentive for the maintenance of the best service by the express companies and if the service should deteriorate or become unsatisfactory there would appear to be no form to which the complaining shipper could go for redress. The committee recommended that the League undertake to bring about an amendment to the Interstate Commerce Act to bring the express companies under the jurisdiction of the commission as to services as well as to rates.

Establishing Routes

The restriction on the commissions power to order the establishment of new routes was also considered. The committee reported that up to the present year the commission construed the above provision to cover only those routes which deprive the carrier of its long haul after it has obtained possession of the traffic. "For example, where a shipment of freight originating on the Santa Fe in Kansas moves to New Orleans, and the Santa Fe has junctions with the Southern Pacific at Fort Worth, Tex. and Houston, the Santa Fe, as the originating carrier in possession of the freight would have the right to decline to enter into a through route to New Orleans, which it does not serve directly, via the Fort Worth junction, because it could obtain a longer haul through the Houston junction. On the other hand, the Southern Pacific would have the right, under such construction to refuse to comply with a commission order requiring it to enter into a through route via Houston where such refusal was on the ground that it would get a longer haul via the Fort Worth junction, because the Southern Pacific, not being in possession of the freight as originating carrier, could not dictate the junction at which it should be received.

"The Supreme Court, in the case of *United States v. Missouri Pacific Railroad Company*, decided January 2, 1929, and commonly known as the Subiaco case, held that the commission was in error in making such a construction and that it could not compel any carrier to establish a joint through route where, as a connecting carrier, it would be possible for it to have a longer haul through another junction. In the example above

cited the commission would be powerless to establish any through route over the two carriers mentioned, except as the carriers themselves might agree to it, for the reason that the Southern Pacific could require the long haul through the Fort Worth junction and the Santa Fe could require the long haul through the Houston junction.

"The commission has been dismissing a number of complaints involving the establishment of through routes which come within the Supreme Court decision above referred to and the committee has been getting protests from shipper interests in various sections of the country urging that the League undertake legislation so as to make the law read as the commission previously construed it." The committee recommended that the League endorse legislation designed to make the law read as the commission has heretofore construed it.

Division of the Commission and its Jurisdiction

The three major undertakings of the commission, according to the legislative committee, have given rise to the suggestion that a division of the commission into three distinct bodies would have the effect of reducing the variety and volume of responsibility upon each commissioner and substantially relieve them of their present burdens. A majority of the legislative committee believed that a division of the commission into two bodies, one to continue as an Interstate Commerce Commission and another to operate as a Finance and Valuation Commission, would be desirable. The Interstate Commerce Commission would retain jurisdiction over rates, fares and charges of common carriers, as at present and including its present duties with respect to allowances, bills of lading, classification, payment of charges, demurrage, divisions, routing, minimum weights, overcharges, reconsignment, rebates, reparation, switching and terminal services, storage and tariffs. It was generally thought that this should be a commission of seven with authority to act by divisions as provided under the present law.

The Finance and Valuation Commission would have jurisdiction over the general matters now handled by the Finance and Valuation Divisions of the Interstate Commerce Commission. This would include abandonment of lines, certificates of public convenience and necessity, acquisitions of control, consolidations, issuance of securities and valuation matters in general. This Commission, the League felt, should consist of five members.

It was the recommendation of a majority of the committee that the League advocate legislation providing for a division of the present jurisdiction of the commission along the lines above suggested and that further study be made of the allocation of duties to the respective commissions with a view to leaving one commission with jurisdiction over rates, fares and charges and matters directly related thereto and the other body with jurisdiction over finance and valuation matters and those matters relating thereto, and that further report be made to the League for action before any final commitment is made as to the allocation of the additional duties not directly involved in rate legislation or finance and valuation work.

Some members of the committee doubted the practicability of dividing the jurisdiction of the commission and suggested that the Interstate Commerce Act be amended so as to authorize the commission to divide itself into three bodies with a division of the jurisdiction between rate, valuation and finance matters in such

manner as the commission feels will best enable it to function with dispatch. To a certain extent this is done today by the commission but the minority members in question were not prepared to go further in their recommendations at present. Other minority members of the committee believed that the commission might well be divided into three independent bodies. The views of the minority members on this point differ.

All of the members of the committee were agreed that the League should not rush too quickly into legislation of such great importance. It was felt that upon further study of the subject, the views may be substantially changed. But it was believed that the subject is of sufficient importance to justify a careful investigation thereof and to solicit the co-operation and assistance of the Interstate Commerce Commission in an endeavor to see if substantial relief can be provided.

League Opposed to Most Mileage Scales

Owing to the fact that within recent months, a report on a basic system of rate making, submitted by the Committee on Rate Construction and Tariffs at the annual meeting of the League in Chicago in November, 1925, has been interpreted as being an endorsement by the League of mileage scales of rate for general application throughout the country, particularly with respect to inter-territorial class rates and commodity rates related thereto, a special committee was appointed by the Executive committee to consider the situation. The special committee, in view of the apparent misinterpretation of the report and the tendency of the commission to substitute untried mileage formulas for rate adjustments that have long served the needs of commerce, recommended that the League definitely go on record as being opposed to the use of mileage scales except when it is conclusively shown that they will not interfere with the needs of commerce or with the free movement of traffic. It was also recommended that the League be opposed to the use of mileage as the determining factor in making commodity rates and to the tendency towards relating commodity rates to class rates which have been fixed solely on mileage, as this theoretical method of rate making ignores all other factors that have heretofore properly been given consideration and must inevitably do violence to established industry and channels of commerce.

A special committee on co-operative procedure before the Interstate Commerce Commission considered shortened procedure, modified procedure, a conference plan, procedure prior to the submission of cases for final decision, pleadings, the submission of evidence, oral argument and House bill 16,883. It recommended that the League recommend to the Interstate Commerce Commission that consideration be given to the adoption of the following suggestions, which, in the opinion of the committee, give probable or possible ways in which the commissions procedure could be improved and its work expedited to the general advantage of all parties. One, that some provision should be adopted to discourage the indiscriminate filing of trivial complaints, (a) either by requiring a modest deposit to cover the cost of preparing the record, or (b) by adopting a plan by which minor complaints may be disposed of by employees of the commission. Two, that when formal cases filed with the commission are assigned to either the shortened or modified procedure public announcement should be made through the usual channels. Three, the modified procedure permits the co-operative handling of cases. The committee believed it has considerable merit and recommended that the League encourage its

greater use. Four, that the commission give consideration to a plan for the handling of formal complaints which would bring about a better understanding of the problems of the shippers, the carriers and the commission, and would result in a further co-operative handling of formal cases. Five, that when a formal complaint is filed with the Interstate Commerce Commission complainant be required to furnish with his complaint a general summary or outline of the evidence proposed to be submitted, and defendants similarly be required to submit with their answers an outline of their defense, carriers being allowed something more than the present 20 days to file their answer. Six, that the commission more strictly enforce the rule with respect to the submission of evidence, and that facts which are clearly stated on exhibits should not be unnecessarily explained. Seven, that parties to formal proceedings refrain from asking oral argument in cases not involving matters of importance.

Other Reports

The Passenger Traffic committee recommended that the Legislative committee continue its opposition to any bills that may be offered in Congress to repeal the Pullman surcharge. It also recommended that the League appear, by its counsel, in Docket 22,735, the inquiry into the subject of extra fares on passenger trains, and take such steps therein as may tend to avert any further depletion of passenger revenues which may have for its ultimate effect the imposition of additional burdens upon railroad freight traffic.

Other committees reporting included those on Bill of Lading, Classification, Co-operation with Railroad Traffic Executives, Diversion and Reconsignment, Express, Freight Claims and Claims Prevention, Highway Transportation, Inland Waterways, Rate Construction and Tariffs, Weighing, the Budget of the Interstate Commerce Commission, the Payment of Freight Charges, York-Antwerp Rules, Fourth Section, the Postal Service, Embargo Rules and Regulations, Transportation Instrumentalities and Car Service, Rails and Water Competition and Hague Rules.

* * *



A New York Delegation Leaving on the P. R. R. Special for the R. B. A. Convention at Chicago

Left to right: Arthur N. Dugan, National Bearing Metals Corporation; George Le Boutillier, vice-president, Pennsylvania Railroad; F. H. Shepard, Westinghouse Electric & Manufacturing Company; J. E. King, American Radiator Company; C. R. Ellicott, Westinghouse Air Brake Company; E. A. Workman, manager purchases and stores, Central Railroad of New Jersey; F. G. Ashton, The Foundation Company; W. M. Wampler, Ellicon Company.

Southern Pacific Contends That New Line Is Unwarranted

Witnesses opposing Great Northern construction assert that present facilities developed would be superior to new

THE case for the Southern Pacific, the chief intervenor against the Great Northern and the Western Pacific in the application of those roads for permission to construct a connecting link between their systems in Northern California and Southern Oregon, at the Interstate Commerce Commission hearing at San Francisco was opened on November 21 after eight days had been devoted to the testimony of witnesses and intervenors for the applicant roads. The Southern Pacific witnesses sought to show that the construction of the new line from Keddies, Cal., to Klamath Falls, Ore., would duplicate existing facilities, that there is no need for competition in the territory to be traversed by the line and that "regulated monopoly" should continue.

Some of the main contentions raised by the Southern Pacific in the presentation of its evidence before Charles D. Mahaffie, director of finance of the Commission, were that:

Emergency war demand for coastwise transportation could be served by the existing lines of the Southern Pacific; the proposed line is not needed to open new timber tracts because there is already an overproduction of lumber; the supply of refrigerator cars for California would not be increased by the new line; the Southern Pacific is not earning a "fair return" on its investment in Oregon and northern California; enough suitable highways are already available in the region to serve any normal emergency in conjunction with existing rail lines.

George W. Boschke, chief engineer of the Southern Pacific, in his opening statement asserted the willingness of that railroad to serve as a freight carrying link between the Western Pacific and the Great Northern. He proposed that the Southern Pacific construct a connection with the Western Pacific at Flanigan, Nev., and with the Great Northern at Klamath Falls, enabling those roads to utilize the newly constructed line between Klamath Falls and Flanigan, via Alturas. The cost of the new construction, he estimated, would exceed by 10 per cent the \$13,000,000 estimated by the Great Northern and Western Pacific, and even if constructed the new line would afford facilities inferior to the possible development of present Southern Pacific trackage.

Mr. Boschke declared that second hand rail would be used in the construction of the new line, and that there would be no icing stations or block signals. The routing of Western Pacific shipments destined for northwestern points over the Southern Pacific from Flanigan to Klamath Falls would mean a saving of 85 miles over the proposed Great Northern-Western Pacific route, he said.

John F. Shaughnessy, chairman of the Public Service Commission of Nevada, and E. H. Walker, traffic manager of the Reno (Nev.) chamber of commerce, both recommended the plan of using the Alturas cut-off as a connection between the two roads. The protest of these witnesses was based largely on the prediction that the new construction would divert profitable traffic which now passes through Nevada.

Nevada's opposition to the proposed construction, Mr. Shaughnessy said, is based upon the following points:

The question is one of regulation, not of competition; the Flanigan gateway will achieve the same result at no extra cost; construction of the new line will divert business from Nevada, and lessen the number of Southern Pacific employees, to the detriment of Nevada business; economic conditions in northeastern California are not such as can support 200 miles of new construction.

The Reno chamber of commerce is opposed to the construction because it will divert 1,737 trains of 32 cars each per year from the Southern Pacific main line to the detriment of Reno, Mr. Walker said.

Mr. Shaughnessy also declared that "it is comparatively easy to arouse public sentiment in favor of new railroad enterprises, but this proposal does not justify permitting the invasion of territory already adequately served by an established carrier. The established carrier is entitled to the larger consideration—in other words, surely it should be given the opportunity to reconstruct and make such improvements in its system and service as will enable it to ultimately meet the proposed competition offered.

The Indian Valley, a 22-mile road extending from Paxton, Cal., to Engels, appeared as an intervenor for the Southern Pacific on November 21. O. H. Bru, general manager, testified that a large part of the Indian Valley's investment of \$485,000 would be rendered useless if the Western Pacific should build its proposed part of the connection. The condition of the railroad is good, it serves its territory well and is able and willing to build branches to serve the surrounding territory, he said. He declared further that the new line would not serve any territory that his own line could not serve and that one of the objects in building the Indian Valley was to handle the logging needs of the country, such as had been proposed by the Western Pacific.

Upon cross-examination by Judge Warren Olney, Western Pacific counsel, Mr. Bru admitted that his road had been constructed primarily to serve the Engels copper mine, adding that it had a grade of 4 per cent and that it operates trains of only four to six cars. It had never handled six fully loaded cars in one train into the junction with the Western Pacific at Paxton, he said. It was also stated by the witness that his company desired to sell its property to the Western Pacific.

C. F. Flynn, general manager of the Albion Lumber Company, who was presented as a witness by the Southern Pacific to counteract the Western Pacific evidence that new timber resources could be made available by the new construction, declared that there is a very heavy surplus of lumber in the United States. Production of lumber has been falling off in recent years to balance a rapid decline in consumption, he said. In 1909, 44,000,000 board feet were used, while in 1928 the consumption declined to 35,000,000 board feet. Lumber mills are operating not to exceed 70 per cent of capacity

and there is no economic reason for developing any further production, he stated. To add strength to his assertion that the Pacific coast lumber interests are suffering more than any other portion of the nation from the surplus, Mr. Flynn presented an exhibit of charts, maps and statistical tables.

In his testimony, Arthur B. Hoffman, superintendent of transportation of the Pacific Fruit Express, stated that the proposed construction would not serve to bring any more fruit cars into California than could be operated over the existing lines. His company would receive all cars offered by the Great Northern and move them over the Southern Pacific lines in times of car shortage. He added that the Great Northern had needed more refrigerator cars than it actually possessed and that at the peak demand in 1929 it had been forced to borrow cars.

Vail S. Andrus, assistant to the vice-president of the Southern Pacific, presented a group of exhibits designed to show that that railroad's service into Oregon is adequate. The exhibits covered the details of facilities, standards, operation, speed possibilities, efficiency and the territory reached by the Southern Pacific. The assistant auditor of the Southern Pacific, W. B. Burris, offered figures to show that the railroad was not earning enough on its operations in Oregon and California to constitute a fair return on its investment in those two states, estimated at more than \$1,000,000,000. Profit on this investment was less than 1 per cent in 1928, he said, still less in the preceding year and competition would not tend to better the situation.

Major J. J. Sullivan, of the United States army reserve corps and assistant superintendent of the Shasta division of the Southern Pacific, testified that the major troop movement in a Pacific coast war emergency would be from the East to the West rather than from the South to the North. He declared that the present lines of the Southern Pacific are adequate to move troops and war supplies, and are comparatively safe from attack. Therefore, he concluded, the proposed line would not be needed by the army if the west coast were attacked.

J. D. Galloway, consulting engineer on hydro-electric projects, declared that it would be impracticable to irrigate Big Valley, one of the areas expected to be developed by the new railroad. Several farmers of that region testified for the Great Northern-Western Pacific, telling how they expected to increase production, reach new markets over the proposed line, and among other means, use irrigation to grow new crops. Mr. Galloway replied that the cost of an irrigation system in Big Valley would be \$103 per acre, an uneconomical figure.

The Southern Pacific also placed a geologist, G. J. Seilaff of that railroad, on the witness stand who testified that the market for certain deposits of pumice and diatomaceous earth which the applicant roads expected to develop was not favorable. The demand for these minerals is declining, he said, and the deposits are of inferior quality. Crushed rock for highway construction need not be sought in the region of the proposed line because such material is available throughout northern California adjacent to the highways, he asserted. George Barr, agricultural agent for the Southern Pacific, stated that 88 per cent of the region under consideration is unsuited to agriculture. Grazing lands are used to 92 per cent of their capacity and the soil is too dry for the raising of potatoes.

After devoting the first few days of the presentation of its case to the rebuttal of statements of the Great Northern and Western Pacific witnesses concerning the development of the territory which the new line is proposed to serve, the Southern Pacific, on November 25, placed Paul Shoup, its president, on the stand. The

Southern Pacific has expended such tremendous amounts of money in building new branches in the west to serve developing territory that it feels that it should be protected and entitled to any new business that the next decade may produce, Mr. Shoup said. He offered to open the Stockton gateway to the Santa Fe, the Flanigan gateway to the Western Pacific and the Chemult and Portland gateways to the Great Northern. He further offered to establish joint through rates with other systems under which shippers on the Western Pacific in California will be placed on a parity with the Southern Pacific on all business to and from the north via the Chemult and Portland gateways.

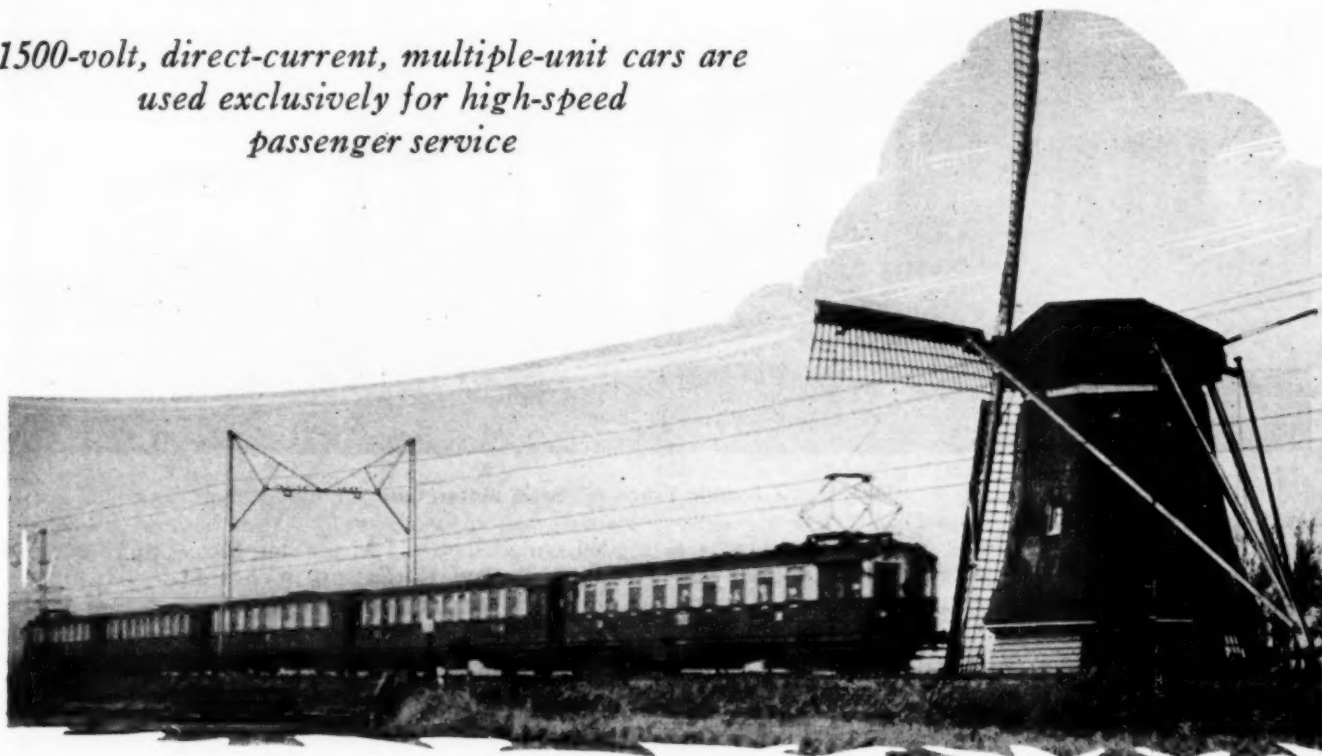
Mr. Shoup freely admitted the reason the Southern Pacific is opposing the proposed construction by referring to that company's investment of more than \$200,000,000 in southern Oregon and northern California, which he said should be protected. Friendly relations could and would be established with the Great Northern and the Western Pacific by a community of interests which would protect the investments of all, he said. When questioned by opposing counsel as to whether it were not in the public interest that the lines of the Santa Fe, the Great Northern and the Western Pacific be connected in order that their investments might be protected, Mr. Shoup declared that those three roads were not built to form one system and it is not in the public interest that they be joined. Mr. Shoup also stated that his railroad would be as much opposed to the connection between the Great Northern and Western Pacific if but one mile of new construction was involved, instead of 200. He asserted that the proposed line will divert freight revenue of \$5,700,000 with a net loss to the Southern Pacific of \$2,000,500 and quoted figures to show that in 1928 Southern Pacific earnings were only \$1,020,000 in this territory, as compared with \$3,300,000 for the Western Pacific. J. T. Saunders, vice-president in charge of freight traffic of the Southern Pacific, amplified Mr. Shoup's offers to open these gateways which have been largely closed to competing roads and added that the proposal to open these gateways represented part of a contemplated revision of freight agreements and was not prompted by the Great Northern-Western Pacific application.

F. S. McGinnis, vice-president of the Southern Pacific in charge of passenger traffic, stated that that railroad is ready to arrange with the Great Northern for the handling of the Empire Builder from Klamath Falls into San Francisco and will make through rates and connections to all points north. He declared that the Southern Pacific, in spite of competition, has met the demands of the public and called attention to the eighteen trains running daily between San Francisco and Los Angeles. The Southern Pacific's route from Puget Sound via Portland to San Francisco is 165 miles shorter than the proposed route, he said, adding that the Great Northern can use the Klamath Falls gateway to better advantage than the proposed route, since it is 78 miles shorter by the Southern Pacific line to San Francisco than by Keddies and the Western Pacific.

F. W. Robinson, vice-president of the Union Pacific, asserted that his road might lose as much as 100 per cent of its traffic between Utah and the Northwest if the proposed route were constructed. The proposed lower rates can be established without building a new railroad, he said. The session of the hearing on November 26 was occupied with the presentation of a mass of statistical testimony in opposition to the new line with H. C. Halmark, assistant general freight traffic manager of the Southern Pacific, and others as witnesses. It was expected that the hearing would end on November 27.

Electric Traction in Holland

1500-volt, direct-current, multiple-unit cars are used exclusively for high-speed passenger service



A Five-Car Train With a Motor Car at Each End and Three Trailers in the Middle

By C. G. Van Mansvelt

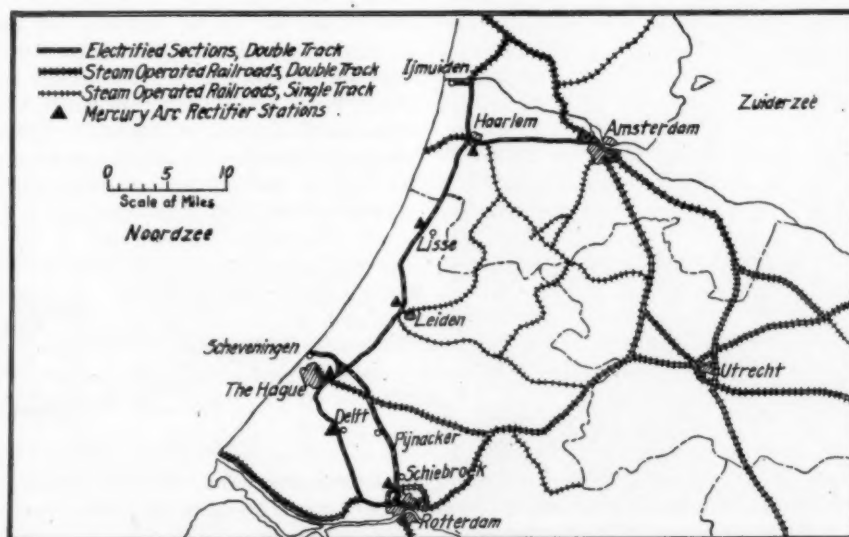
Railway Engineer, Heemaf Hengelosche Elektrische en
Mechanische Apparaten Fabriek

THE electrification of a portion of the Netherland State Railways was undertaken to obtain faster and more frequent service than that obtained previously by steam locomotives. Direct current at 1500 volts was chosen as being best suited to the conditions of high speed, short distances, frequent service and level country.

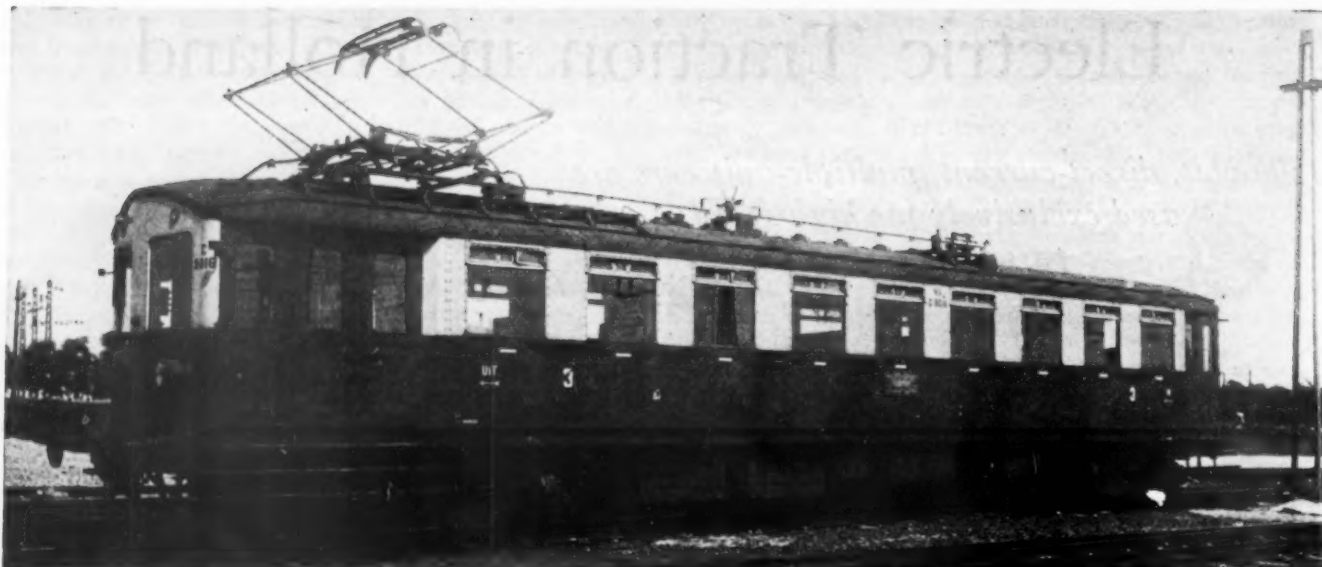
The main line between Amsterdam, The Hague and Rotterdam, the three largest cities in Holland, was put in service in October, 1927. It has a length of 54 miles. In addition to this section, the branch line from Haarlem to IJmuiden (7 miles) has been electrified and the old 10,000-volt, 25-cycle, single-phase line connecting Rotterdam, Pijnacker, The Hague, and Scheveningen (22 miles) was changed over and made suitable for the 1500-volt direct-current system, thus obtaining a total of about 83 miles of electrified, double-track railroad.

This part of Holland is quite densely populated, the total population of the cities and small towns, situated along these lines, being about 2,000,000. The number of passengers handled on the several sections varies from 20,000 to 30,000 daily, with the figure increasing constantly. The total distance traveled by the electric trains per day is approximately 8,000 train miles.

The power for the electrified lines is obtained from coal-burning generating stations at Amsterdam, The Hague and Rotterdam, and transmitted as three-phase, 50-cycle, 10,000



Map of Railways in Northern Part of Holland Showing Electrified Sections



One of the Double-Truck All-Steel Motor Cars

or 5,000-volt current to seven automatic mercury arc rectifier substations along the railroad. The total continuous output of the rectifier units in the substations is 23,000 kw.

Rolling Stock

The electric rolling stock consists entirely of standard-gage motor cars and trailers. Ninety-six new cars were provided for the main line from Amsterdam to Rotterdam and the section between Haarlem and IJmuiden, and 23 of the old single-phase cars have been re-equipped for use on the Rotterdam-Scheveningen line. The trailers used consist of 97 new cars and 26 old ones, thus making a total of 242 four-axle, double-truck passenger cars. The new cars are steel cars and most of them were built in Holland by Werkspoor, Utrecht, and Beynes, Haarlem, respectively. The passenger compartments of the cars have first, second or third class accommodation; some of the motor cars have a baggage room and all of the trailer cars, except one type, are provided with a lavatory compartment.

The trains are made up of two, three or four motor cars with several trailers between. A normal five-car train has two motor cars, one at each end of the train, and three trailers in the middle. A seven-car train is made up of three motor cars, two at one end and one at the other, with four trailers between. A ten-car train is obtained by joining two 5-car train units. In special cases, trains composed of one motor car and one trailer are also used.

The normal running speed of the trains is 56 to 59 m. p. h. and a train can be accelerated to full speed in less than three minutes. This is permitting an increase

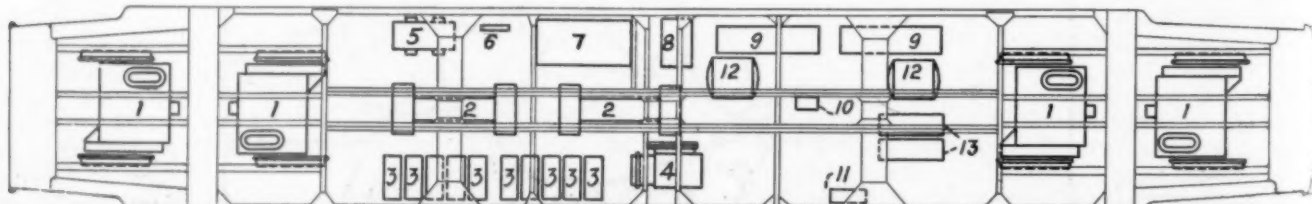
of scheduled speeds. At present, the 54 miles between Amsterdam and Rotterdam is covered in 67 minutes, with one intermediate two-minute stop at The Hague and in 72 minutes when three intermediate two-minute stops are made. The old running times were 78 and 85 minutes, respectively. A small number of trains are still steam operated. These include the Amsterdam-Paris express and a few other through passenger trains. It is planned to use electric locomotives for hauling through passenger trains and for freight service in the future.

A major part of the motors and electrical apparatus were manufactured in Holland and supplied by Heemaf, Hengelo, in co-operation with the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.

Principal Apparatus and Its Location

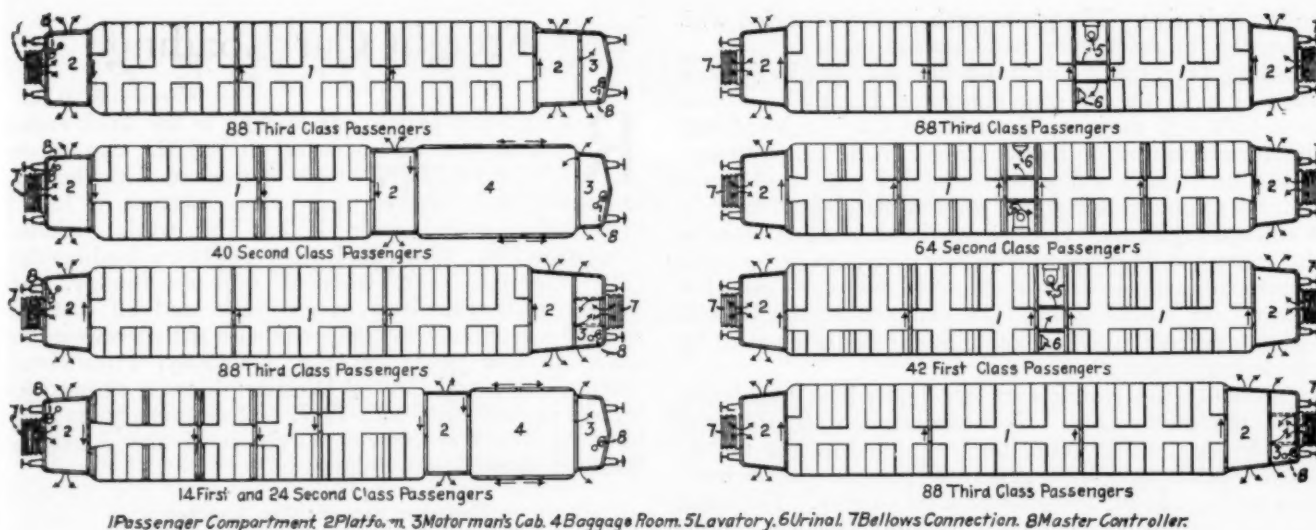
The motive power of each motor car consists of four, self-ventilated, box-type railway motors, having a one-hour rating of 210 hp. at 925 r. p. m. and 236 amperes at 750 volts. The motors are connected permanently in pairs and each is provided with four main and four auxiliary poles and is designed for field control. The gearing consists of a 60-tooth, solid spur gear wheel and a 23-tooth spur pinion. The motors are self-ventilated, the air being taken from the interior of the car through a bellows connection for the purpose of minimizing the amount of dirt in the intake air. The armature bearings for the most part are bronze-shell babbitt-lined sleeve bearings; a few of the motors have been provided with roller bearings.

Electro-pneumatic multiple-unit control operating from a 24-volt circuit is used. All high tension apparatus



1 Traction Motors. 2 Switch Groups. 3 Main Grid Resistor Frames. 4 Motor-Driven Air Compressor. 5 Motor-Generator Set. 6 Fuse Box and Heater Bus. 7 Box for H.T. Auxiliaries. 8 H.T. Motor Cut Out Switch. 9 Storage Battery. 10 Resistor for M.G. Set. 11 Junction Box. 12 Main Air Reservoirs. 13 Control Reservoirs.

Arrangement of Electrical Apparatus Underneath the Motor Cars



Eight Different Types of Cars Are Used—Motor Cars Weigh 66 Tons and Trailers Weigh 44 Tons

tus is mounted underneath the car floor. Each motor car has only one completely equipped motorman's cab, located at the front end of the car. A second master controller for emergency use is placed on the platform at the rear end. Accelerating current is limited automatically. Each car is equipped with 22 electro-pneumatic unit switches located in two switch group boxes, containing 11 switches each. These switches which control the electrical combinations of motors and regulate the accelerating resistances are operated by compressed air at 75 lb. pressure. The switch group boxes are suspended under the car on porcelain supports. The electro-pneumatically operated reverser, the overload trip relays and the no-voltage relay are located in separate side compartments of the switch group boxes. Dirt and dust is excluded from these compartments by the use of felt gaskets under the covers.

The main accelerating resistors are mounted on porcelain under the car, parallel to the longitudinal center line, to insure maximum ventilation and the floor above the grids is protected with asbestos lumber.

A 1500-volt, hand-operated, drum-type motor cut-out switch permits cutting off a defective pair of motors in case of damage and a low-voltage control switch enables the trainman to cut out all four motors if necessary, without leaving the car and without breaking the power to the 1500-volt auxiliaries.

The pantograph on the car roof is pneumatically operated and is of the double shoe, air-raised, gravity lowered type. It is designed for a height of trolley wire varying between 16 ft. and 18 ft. 8 in. above the top of the rail. The sliding shoes are provided with strips of soft copper for contact and will satisfactorily carry currents up to 800 amperes per motor car. Most of the motor cars have only one collector; a few having a second which is kept in the lowered position.

The roof of the car is also equipped with a horn gap type main fuse, a condenser type lightning arrester and a choke coil as well as a trolley and ground knife switch. When operating this switch with a hook stick, the main and auxiliary circuits can be separated from the trolley and grounded for the purpose of inspection.

Features of the Equipment

The controller is equipped with a dead-man release feature and allows for one switching and three running positions; two pair of motors in series with full field; two pairs of motors in parallel with full field; and

two pairs of motors in parallel with short field. There are eight series resistance steps, seven parallel resistance steps and two short field steps. Rheostatic braking has not been provided, the standard air brake being considered adequate for the Dutch conditions of level track.

The operation of the pantograph is controlled by a pair of push button switches and an air engine operated pantograph valve, provided with two magnet-valve coils, one for raising and one for lowering the pantograph. This apparatus permits the pantograph to be held in the raised position even when the "up" magnet-valve



The Motorman's Compartment As Seen From the Opposite Side of the Car

coil is defective. The pantograph is also provided with a handle for emergency hand operation.

Energy for the control and lighting circuits is supplied by a 1.7 kw., 24-volt generator directly connected to a 1500-volt motor. The set is totally enclosed and the armatures run on ball bearings. A 12-cell, 180-ampere hour battery is floated across the generator terminals, the voltage being held approximately constant by a voltage regulator. Special provision is made to raise the control voltage up to 34-volts, if necessary, to compensate for voltage drop in the train line wires used for lighting on 10-car trains. In such cases, the 24-volt lighting current for the leading motor car is supplied by the battery only.

Normally the trailer cars are lighted independently from the motor cars. Each trailer is equipped with axle-driven, 24-volt generators, mounted on the under-frame of the car. This generator operates in conjunction with a 12-cell, 180-ampere hour battery. The same as used on the motor cars. Lighting circuits are included in the two 21-point train line receptacles on each end of the car. One of these receptacles is used at a time, the other being kept as a spare. The heater bus is connected with a single-pole, 1500-volt coupler provided with a safety device that opens the heater bus switch when the cover is open so that the load current will not be broken at the receptacle when the jumper is pulled out.

Compressed air for brakes, whistles and control apparatus is supplied by a motor-driven air compressor consisting of a 1500-volt, direct current, series wound motor connected to a geared Duplex compressor, the piston displacement of which is 35 cu. ft. per minute.

The cars are heated by 32 cab heaters per car, connected in series on 1500 volts. The heaters are mounted in grounded perforated iron frames and each has a capacity of 450-watts. The heater circuit in each car is protected with an aluminum wire type fuse and the heater bus train line is protected by a copper-ribbon magnetic blowout type of fuse.

The electrification has proved highly satisfactory and it is expected that the Netherland State Railways will proceed with its program and extend this initial electrification to other sections.

Decision has just been reached to also electrify the sections Amsterdam-Uitgeest-Alkmaar (24 miles) and the Uitgeest-Velsen (6 miles) in the northern part of Holland. Electrical operation on these additional sections will probably be in full force during the year 1931.

* * *



A Southern Pacific Suburban Train at San Francisco

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended November 16 amounted to 983,323 cars, a decrease of 72,797 cars as compared with the corresponding week of last year but an increase of 15,271 cars as compared with 1927. The week included Armistice Day, which had more effect on loading this year than last year, when it fell on Sunday. All classes of commodities except coke and all districts showed a reduction as compared with the corresponding week of last year, but the Allegheny, Pocahontas, Northwestern and Central Western districts showed increases as compared with 1927. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week Ended Saturday, November 16, 1929.

Districts	1929	1928	1927
Eastern	218,181	233,243	219,988
Allegheny	204,791	219,369	193,685
Pocahontas	60,383	63,446	52,229
Southern	136,029	156,812	149,875
Northwestern	131,774	129,366	120,270
Central Western	153,505	156,147	151,750
Southwestern	78,660	87,837	80,255
Total West. Dists.	363,939	383,250	352,275
Total All Roads	983,323	1,056,120	968,052
Commodities			
Grain and Grain Products	35,874	52,839	46,479
Live Stock	33,452	35,505	35,033
Coal	184,772	198,887	186,330
Coke	11,365	10,794	9,297
Forest Products	53,610	64,448	59,568
Ore	33,295	37,267	13,054
Mdse. L.C.L.	259,492	260,398	260,005
Miscellaneous	371,463	395,982	358,286
November 16	983,323	1,056,120	968,052
November 9	1,049,475	1,054,353	975,134
November 2	1,071,650	1,103,942	1,039,075
October 26	1,133,810	1,162,974	1,112,816
October 19	1,185,510	1,163,135	1,129,055
Cumulative totals, 46 weeks	47,661,409	46,143,059	46,619,887

The freight car surplus for the week ended November 8 averaged 163,323 cars, an increase of 39,129 cars as compared with the last week of October. This included 97,494 box cars, 35,745 coal cars, 18,831 stock cars and 4,364 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended November 16 totaled 62,825 cars, a decrease from the previous week of 8,886 cars and a decrease from the same week last year of 20,219 cars. One factor was that Thanksgiving Day came on November 11 this year, a national holiday.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
November 16, 1929	62,825	37,130
November 9, 1929	71,711	37,553
November 2, 1929	72,425	39,158
November 17, 1928	83,044	39,687
Cumulative Totals for Canada		
November 16, 1929	3,184,952	1,882,960
November 17, 1928	3,272,693	1,816,117
November 19, 1927	2,990,670	1,719,795

THE TELEGRAPH AND TELEPHONE WIRES of the Pennsylvania Railroad between Trenton, N. J., and Jersey City, about 60 miles, consist of cables laid underground, this construction having been introduced on this line about 15 years ago, following a great snow and sleet storm. Arrangements are now being made for the installation of underground cables, in place of the pole lines, on the line from Trenton west to Liddonfield, Pa., 19 miles.

Is a Railway Warranted in Manufacturing Its Equipment?*

Railway Business Association presents data to enable railroad officers to determine equipment manufacturing costs

THIS report is presented with the observation that the association refrains from expressing an opinion as to whether any one railroad should manufacture any particular article under any specific conditions. It is viewed merely as a reflection of the current trend and as a guide for railway officers toward available sources of information and their methods of use.

Material has been gathered from the Interstate Commerce Commission, the Bureau of Railway Economics, the Census Bureau, conversations and correspondence with numerous railway officers and manufacturers; it includes somewhat systematic studies conducted by manufacturing groups in special fields. Wherever an attempt is made to answer a stated query by proposing a statistical method of comparison, the roads tabulated are restricted to the 10 having the largest gross earnings in 1928. Each of the top 10 is the parent company of a system throughout which policy is probably uniform or destined to be, but the conclusion is not advanced that the relations apparent among the 10 would necessarily persist in a table comprehending 250-odd roads. The corresponding facts concerning any specified railroad or group of railroads can be furnished should the demand arise.

The phases of railway shop manufacturing most debated are whether it tends toward stabilization of railway employment and the contentment of railway employees; whether it preserves the security of the railway against failure of essential supplies; whether it insures the important and revolutionary mechanical progress which is a major factor in the larger operating economies, and whether it promotes current operating economy.

Staff Digest of Conference Committee Data By Frank W. Noxon, Secretary

As a preliminary, the Committee suggests a method by which a railway officer may know whether his railroad does relatively more or less manufacturing than the average road and whether the tendency is marked enough to warrant an inquiry into the conditions. Such an officer can rank his road in this respect by ascertaining the number of hours worked by employees in the shops relative to the magnitude of traffic. Hours worked in manufacture and repair, whether the cost be charged to operating expense or to capital account, and whether the work be for way and structures or for equipment, are all performed in the same shop by the same force and classified under maintenance and stores. This is the effort exerted by a railroad in the maintenance and enlargement of the equipment and road which the traffic wears out or exhausts, or which progress makes obsolete. So hours worked on maintenance of

equipment and stores measure the amount of manufacturing.

Traffic is measured by "traffic units"—signifying ton miles plus three times passenger miles. The relative amount of manufacturing is the hours worked, reported under maintenance of equipment and stores, in proportion to traffic units. The present classification of employment reports first became effective for a full calendar year in 1922. Hence comparable statistics cover the years 1922 to 1928, inclusive. Table I, which is offered as a suggestive model for method, compares the

Table I
Maintenance of Equipment and Stores, Employee Hours and Traffic Units Average for Years 1922 to 1928

All Class I roads in United States	Traffic Units ^a (000 omitted)	Hours	Employee Hours per 1000 Traffic Units		Rank
United States	522,604,214	1,284,680,709	2.46		
A. T. & S. F.	14,443,326	45,596,886	3.16		1
C. & N. W.	11,605,686	35,349,368	3.05		2
C. M., St. P. & P.	13,964,517	41,936,831	3.00		3
S. P.	14,688,986	43,317,441	2.95		4
Penna.	58,449,205	155,137,776	2.65		5
Southern	10,650,496	28,109,159	2.64		6
B. & O.	21,827,808	53,944,600	2.47		7
I. C.	16,622,766	40,122,895	2.41		8
C. B. & Q.	14,990,758	35,899,448	2.39		9
N. Y. C.	32,153,697	69,222,400	2.15		10

^a "Traffic units" represents revenue ton-miles plus three times revenue passenger-miles.

annual average of the 10 roads having the largest gross earnings in 1928. On the seven-year average road, the road which did relatively the most manufacturing was ranked as No. 1.

A—Contentment of Employees

Does railway shop manufacturing tend to promote contentment of employees through stabilization of employment?

Railway officers say that when repair work is light some employees are kept on the roll idle while many others are laid off; and that shop production makes work for these men, stimulating their loyalty. The committee has glanced in a limited way at statistical comparisons for signs that success in holding a shop force together against a strike is necessarily characteristic of roads which do the most manufacturing. The figures for the largest 10 roads seem neither to prove nor to disprove any relation between the two.

The most recent test of the shop employees' attitude toward the several roads was in 1922. The shop strike which began in that year was protracted for different lengths of time on the various lines. A good basis for comparison would be the whole year 1922, when the present basis of employment reports was in effect. The question is this: Which roads had to win back the largest percentage of men in 1923? That is, by what percentage were the hours worked on maintenance of equipment and stores in 1922 increased in 1923?

* Abstract of a report presented before the annual meeting of the Railway Business Association at Chicago, November 21.

To judge whether railway manufacturing has any relation to contentment of labor, a railway officer can construct a table to show any list of roads which he may wish to compare, stating in one column the rank of each road as to the hours worked on maintenance of equipment and stores in the shop-strike year in proportion to

Table II
Maintenance of Equipment and Stores, Employee Hours 1922 and 1923

Rank in Mfg.	Road	1922	1923	Per cent increase 1923 over 1922
	All Class I roads in United States	1,203,513,468	1,517,918,041	26.1
3	C., M., St. P. & P.	41,652,336	49,427,004	18.7
5	Penna.	164,818,499	197,908,672	20.1
4	S. P.	39,884,847	48,165,791	20.8
9	C., B. & Q.	38,287,680	47,165,623	23.2
8	I. C.	38,190,803	47,190,735	23.6
2	C. & N. W.	33,201,104	41,233,983	24.2
1	A., T. & S. F.	44,641,019	55,836,339	25.1
10	N. Y. C.	63,549,993	80,690,658	27.0
7	B. & O.	49,381,961	65,657,858	33.0
6	Southern	23,643,569	32,274,429	40.7

1923, and in a second column the rank of each road as to maintenance hours in proportion to traffic. Table II illustrates this method with the 10 largest gross earners.

An attempt to discern from this table a relation between shop manufacturing and the steadfastness of employees may be made by dividing the 10 into two groups of 5 each. Look first at the five which had the smallest percentage of employees to win back after the strike.

Rank in Steadfastness	Road	Rank in Manufacturing
1	C., M., St. P. & P.	3
2	Penna.	5
3	S. P.	4
4	C., B. & Q.	9
5	I. C.	8

Nos. 1, 2 and 3 in respect of that good fortune were Nos. 3, 5 and 4 in relative amount of manufacturing, whereas Nos. 4 and 5 in good fortune with labor were Nos. 9 and 8 in manufacturing—next to the least. In like manner, dividing the 10 into fives as to manufacturing, we have:

Rank in Manufacturing	Road	Rank in Employee Steadfastness
1	A., T. & S. F.	7
2	C. & N. W.	6
3	C., M., St. P. & P.	1
4	S. P.	3
5	Penna.	2

Those that did relatively the most manufacturing, Nos. 1 and 2, were in that respect among the five that had the most employees to win back, namely, Nos. 6 and 7, while Nos. 3, 4 and 5 in manufacturing were the most fortunate in respect of maintaining their forces in 1922—Nos. 1, 3 and 2. So far, then, as concerns these 10 largest roads, the committee has been unable to see in the figures any significant relation between shop manufacturing and loyalty of employees—proof either that manufacturing does or does not tend to bind the men to the company.

Stability of Shop Employment

Does railway manufacturing in fact tend to promote stability of railway shop employment?

To be automatic, the computations for an answer to this question must be made by members of the commission staff, who are too much overburdened with work to do it promptly in regular hours. Most railway officers who have discussed the employment aspect of shop manufacturing appear to place more emphasis upon fluctuations within a given 12-month period than upon fluctuation of one whole year with another. To some extent a comparison of two roads in a single year might lose significance because of exceptional circumstances

applicable to one system and not to the other. To smooth out these eccentricities through the use of averages, the study might be spread over a period of years, beginning after the 1922 shop strike. That would give the six years 1923 to 1928. Within each year the Commission has monthly reports on hours worked. A given road in a given year reports a spread from the lowest to the highest month. Expressed in variation per cent from lowest to highest, and averaged for six years, we would have the average annual fluctuation per cent in hours worked in maintenance shops. Ranking the tabulated roads as to manufacturing policy, as indicated in Table I, the relation, if any, between manufacturing and seasonal fluctuations of employment would appear.

Unemployment in Serious Depressions

Supply manufacturers manifest greater interest in the fluctuations from year to year, especially from peak to slump. Considering unemployment as a social problem, they remark, the observer of trends must attach more importance to the large-scale and long-protracted idleness inflicted upon the workers by occasional heavy depressions in general business.

The supply manufacturers point out that a sag in railroad traffic and earnings finds the railroad curtailing expense wherever possible, and having no other customer than itself for whom mechanics can be put to work, it must and does lay large numbers of them off. The manufacturer, on the contrary, they say, when his regular domestic railroad customers are out of the market, can sell to non-railroad customers or for export. From the social standpoint they inquire whether mechanics on the whole are benefitted as to stability of employment by being transferred from contract plants, where fluctuation of employment is somewhat mitigated by these circumstances, to the railway shop, where they are almost wholly unprotected from the affliction of every depression.

Manufacturers express the conviction that in important depressions railway shop manufacturing has a tendency to aggravate rather than mitigate unemployment. They contend that usually if not always, a kind of work, once undertaken, inclines to become permanent, using a force especially created rather than relying upon men normally engaged on something else but temporarily idle. Shop work, they insist, is drastically cut down in times of large car and locomotive surplus, and the heavier the maintenance force the wider the distress.

Attitude of Organized Labor

There is another phase which cannot be measured statistically but which the manufacturers emphasize. Assuming that the effort to stabilize railway shop employment has for its motive the development of good will among the employees toward the railway, they refer to the attitude of the railway labor organizations on governmental problems affecting the roads.

One such problem is anxiety lest the federal government seize the properties again. The Plumb plan is recalled—a project conceived and endorsed by the unions for government ownership with control and management by the employees, who were to have the advantages of railway prosperity and none of the responsibility for losses. It is asked whether the Plumb plan was not postponed merely because it had been found untimely, and whether that same scheme or another representing the same school of thought will not reappear with the first transportation breakdown or the first sign of public displeasure with the roads for whatever cause.

Prominent conservatives in both branches of Congress are quoted as deeming the government ownership movement ready for energetic resumption at the first propitious moment. It is inquired whether such a turn of events would not see the railway employees again supporting that project, and whether their strength in promoting it will not be increased by every transfer of manufacture from the contract shop to the railway shop. Similarly, it is contended that enlargement of shop work broadens the area of work and of workers affected by the strike.

Stabilization Through Budgets

Recognizing that periodical unemployment is a misfortune the alleviation of which is a responsibility of every employer, the manufacturers have urged upon the railways an alternative to shop manufacture. Ups and downs, they think, could be mitigated by planning maintenance and improvements in budgets covering more years than one, thus not only dividing the work more equally one year with another but tending through better stabilized purchases to moderate the fluctuations in general industry and business, so making more nearly equal through the years the running repairs done in railway shops and the revenue with which to pay for those repairs.

B—Security of the Railway Against Failure of Essential Supplies

What data would indicate the extent to which railways depend upon contract mills?

Table III, supplied by the American Railway Car Institute, and covering the period since federal control, tabulates the number and percentages of total freight car orders taken by railroad and by contract shops. In each of the three years last past contract shops built about 80 per cent of the total. In 1922, under stress of

Table III

Freight Car Orders—Railroad and Contract Shops

Year	Railroad Shops	Contract Shops	Total	Per Cent Built In Railroad Shops
1921....	894	19,673	20,567	4.35
1922....	6,533	172,864	179,397	3.64
1923....	11,111	83,591	94,702	11.73
1924....	9,299	135,652	144,951	6.42
1925....	9,047	77,532	86,579	10.45
1926....	12,764	48,846	61,610	20.72
1927....	14,760	61,899	76,659	19.25
1928....	10,124	39,825	49,949	20.26

a shop strike, with a call for six and a half times as many cars as in 1921, the increase, 158,740, was taken care of in these proportions: Railroad shops, 5,639 or 3.5 per cent; contract shops, 153,191 or 96.5 per cent. Again in 1924 a total increase of 50,249 over the previous year was wholly taken care of by the contractors, the railroads recording no increase but rather a decline of 1,812 cars.

On the locomotive side, the *Railway Age* publishes in its annual statistical issue, reports of orders, indicating the builder in each transaction. The Committee has had the material assembled in Table IV.

In none of these years has railroad company production reached 13 per cent of the total. In 1923 and 1924 when total output from both sources for the two years taken together was 3,395, or 35 per cent of the product during the whole eight years, contract shops did 90 per cent of the work. In the year of largest total locomotive building since federal control, 1923, the output reached 1,982. Of this record joint output for recent years the year of highest railroad shop production, 1924,

showed 169, or 8.5 per cent. For the last four years railroad shops have built from 121 down to 43 locomotives, while contract shop output in the same years ranged from 539 to 1,239.

For 1928 only, we have figures covering a typical right-of-way item—frogs and switches, estimated by an organization of manufacturers in that field, the Mangane Track Society, said to represent 90 per cent of the product but reporting for all products. Table V shows in 1928, 13.5 per cent of the tonnage built in railway shops. In the absence of figures, our informant has the impression that the 1928 percentage represents an increase in recent years, "due either to an increase in railroad manufacturing activities or the general retrenchment policy of the railroads during 1928."

Table IV
Locomotive Orders

Year	Company Shops	Contract Shops	Total Domestic Orders	Per Cent Company to Total
1921....	..	239	239
1922....	28	2,572	2,600	1.08
1923....	154 ^a	1,828	1,982	7.77
1924....	169 ^b	1,244	1,413	11.96
1925....	43	970	1,013	4.24
1926....	121	1,118	1,239	9.77
1927....	47	638	685	6.86
1928....	67	472	539	12.43

^a Includes 2 orders designated "Westinghouse-Ford."

^b Includes 1 order designated "Altoona works-Westinghouse."

Concerning car and locomotive parts and the general run of material and supplies the Committee considers it a matter of general knowledge that in almost any line a substantial increase in imperative requirements would find every railroad in the country turning to contract industry for practically the whole enlargement of production.

Contract Industry Indispensable

In an authorized interview given to the Railway Business Association in 1927, Interstate Commerce Commissioner Frank McManamy, who during federal control was assistant director of operation in the Railroad Administration in charge of matters relating to equipment, was asked: "Does the Commission regard it as in the public interest for the railway supply industry to be preserved, and would it look with anxiety upon any tendency to starve it into feebleness?" Mr. McManamy replied: "The railway supply industry is essential to the successful operation of the railroads and to the prosperity of the country." The Commissioner recounted his official attitude during federal control. At

Table V
Frog and Switch Production—1928—Net Tons

Railroad Shops	Contract Shops	Total	Per Cent Built In Railroad Shops
21,812	139,645	161,457	13.5

that time he authorized mechanical officers to attend and study the railway equipment exposition in Atlantic City and directed them to report their observations, in writing, as "of substantial value." Concluding the interview the Commissioner said: "Alike as a dependable source of standard supplies and as a promising source of inventions and progress, the railway supply industry is indispensable to the future development of our railways."

Effect on Contract Industry

Is there reason to think that self-manufacture by railroads has affected contract industry as a source of railway supplies?

Growth of plant may be measured by horse-power, as

reported in the biennial federal census of manufactures. The latest year is 1927. The products covered are locomotives and cars. Table VI contrasts the increase, 1927 over 1925, in horse-power of railroad shops with that in contract shops. As to horse-power in car shops, the census combines shops serving steam and electric roads. In value of output, car shops serving steam roads were 93 per cent of the total in 1925; a basis which would indicate for steam-road cars a horse-power of 226,859 in 1925 and 219,866 in 1927, a decline of 3 per cent. Contract locomotive plants increased their horse-power from 114,209 in 1925 to 148,971 in 1927 or 30 per cent. The census affords no basis for comparing the contract trend with the company trend in cars or locomotives separately, but combines all company rolling stock shops. The total horse-power in railroad company car and locomotive shops increased from 871,769 in 1925 to 1,037,464 in 1927 or 19 per cent, while in contract shops as estimated above the increase was from 341,068 to 368,837, or 8 per cent.

For a number of years manufacturers have predicted a slowing-down in the expansion of the supply industries as compared with railway shop enlargement. They observe that concerns formerly devoted wholly to producing railway necessities have sought to acquire non-

cerns. Manufacturers contend that in the past this branch of progress has underlain all the rest; that in the present it is almost the whole process; and that nothing can prevent its continued dominance as a factor in economy except self-manufacture by railroads carried to the point of discouragement to private contract enterprise.

How Mechanical Progress Produces Economy

Advance in economy may be measured by cost of conducting transportation per traffic unit. Ton-miles rising but passenger miles falling, "traffic units" increased only two-tenths of 1 per cent in 1928 over 1923. So we here regard the two years as equal in traffic. For Class I roads the expense classified as "transportation"—running the trains was 12.4 per cent less in 1928 than in 1923, or \$237,315,000. Various factors contributed to this economy. Some available figures suggest how large a part is due to mechanical advance. Weight of trains, signaling systems and other improvements have influenced the increase in performance of the railroad per employee. If Class I roads had had to report the same hours worked on "transportation" in 1928 as in 1923, the hours worked would have been 17

Table VI
Horse-Power in Car and Locomotive Plants Serving Steam Railways

	CONTRACT SHOPS		Percentage
	1925	1927	
Electric and Steam Railroad Cars.....	243,934 ^a	236,415 ^b	
93 per cent ^c	226,859	219,866	Dec. 3
Steam Locomotives ^d	114,209	148,971	Inc. 30
Steam Railroad Cars and Locomotives..	341,068	368,837	Inc. 8
RAILWAY COMPANY SHOPS			
Cars and Locomotives ^e	871,769	1,037,464	Inc. 19
COMPARISON OF EXPANSION, 1927 OVER 1925			
Contract Shops			8 per cent
Railway Shops			19 per cent

^a 1925 census, p. 1103. ^b 1927 census bulletin, p. 8. ^c To estimate steam railroad cars separately, it is assumed that they are in the same ratio to the total as the value of the product in 1925, or 93 per cent (1925 census, p. 1105). ^d 1925 census, p. 1108, 1927 census bulletin, p. 12. ^e 1925 census, p. 1648, 1927 census bulletin, p. 8.

railway customers, usually by diversifying product. As this is written, word comes that a large and celebrated establishment until now known for a single railway requisite has adopted diversification. The comment which the committee has been invited to note is that a given plant and force cannot respond as promptly and fully to railroad orders if it is filling non-railroad contracts, especially if its capacity for railway work, not fully used, is permitted to lag behind the growth of the country and of the roads.

C—Mechanical Advance in Product of Contract Industry as a Major Factor in Railway Operating Economies

What facts are available indicating the contribution of contract industry to major economies in railway operation?

In the past, major economies have been divided between those originating in railroad offices and in contract offices. To a great extent the mechanical problems were set by the railroads and solved partly by their own engineers and largely in outside engineering laboratories. A great part of this type of improvement has been completed. On existing routes it is no longer a controlling opportunity for economy. On the other hand, locomotive and car design and the development of track appliances were from the outset an original contribution by contract engineering and industrial con-

Table VII
Net Tons of Fuel Consumed by Locomotives in Freight Service per 1000 Gross Ton-Miles (Including Locomotive and Tender)

	1923	1928	Per Cent Decrease
All Class I Roads	161	127	21.1
A., T. & S. F.	148	111	25.0
C. & N. W.	167	129	22.8
C., M., St. P. & P.	163	129	20.9
S. P.	147	121	17.7
Penna.	152	128	15.8
Southern	199	158	20.6
B. & O.	188	149	20.7
I. C.	148	130	12.2
C., B. & Q.	173	125	27.7
N. Y. C.	129	109	15.5

per cent more than they were, or 237,737,000 hours, equivalent to 81,200 men working eight hours a day. Rates of pay are higher and compensation further increased by the Adamson law. If the number of hours worked in 1923 had been worked in 1928 at the 1928 rates of pay, the "transportation" wage bill would have been \$186,004,000, or 17.6 per cent more than it actually was.

Management's Contribution to Economy

Railway management, freed from federal control, has been a great factor in this economy. We possess, on the other hand, figures covering at least one schedule where, as is well known, the elements of management and of labor are largely subordinate to mechanical improvement. That is economy in fuel. Table VII shows for all Class I roads and for the largest 10 roads a reduction in 1928 as compared with 1923 in pounds of coal per 1000 gross ton-miles hauled, including weight of train. Fuel consumed in 1928, at the 1923 ratio, would have run 27 per cent more than it did, or 21,400,000 tons. Allowing for the difference in average price paid, fuel in 1928 at the 1921 ratio of pounds per 1000 gross ton-miles hauled, would have cost \$58,200,000 more than it did. Nobody knows what fraction of the reduction in transportation wages or in fuel cost should be attributed to mechanical improvement and what fraction to managers, employees and other factors but an idea of the situation may be obtained by cataloguing some particulars. In the locomotive, besides size, there have been superheating, feed-water heating, water recirculation, increase in the heating surface of the fire

box, and the booster, with limited electrification. As to cars, mention had already been made of the air brake and its accessories, which include electric operation of the draft gear and other parts. Recently car progress has been notable in the development of steel underframes, ends, doors and roofs. As to road devices, Roy V. Wright in one of our conferences, listed rail anchors, ballast cars, power tie-tampers, ballast cleaners, locomotive cranes, ditchers, section motor cars, autogenous welding, signalling apparatus, automatic train control, telegraph and telephone apparatus.

Suppose we credit mechanical improvements as to wages with 50 per cent, and as to fuel with 90 per cent of the advance in economy in 1928 over 1923. Combining these proportions of the two items, the saving in 1928 over what the cost would have been on the 1923 basis is \$145,682,000. Results such as these have been termed major economies compared with economies probable or possible in shop manufacture. The total equipment outlay in 1928 for maintenance and gross capital additions was \$1,391,243,000. To equal the saving on these two single items of locomotive fuel and transportation wages in 1928 as compared with 1923, as above stated, self-manufacture would have cut down the equipment bill to 10.5 per cent. The total horsepower devoted to the manufacture and repair of locomotives and cars, taken together, was 74 per cent in railroad company shops. If 74 per cent of the total outlay for equipment, or \$1,029,519,820, was expended in railroad shops, the sum upon which savings from self-manufacture could have been made in 1928 is about \$1,029,519,000. To effect a saving equal to that set forth above on transportation wages and fuel, \$145,082,000, the reduction would have to be 14 per cent under contract prices. It is noted that mechanical improvements represent an investment of capital upon which a return must be paid. To this it is replied that capital investment is essential also in railway shop manufacture—the whole cost of a new or enlarged plant and at all times the cost of keeping the machines and other furniture in existing plants up to date. Manufacturers stress the insignificance of the gain through shop manufacture if the consequences were to dam up the flow of contract invention and development and deprive the roads of major economies from this source throughout the future.

The committee quotes again in this connection the reply of Interstate Commerce Commissioner McManamy, when asked whether the Commission regards the railway supply industry as essential to be preserved in the public interest; "Alike as a dependable source of standard supplies and as a promising source of inventions and progress, the railway supply industry is indispensable to the future development of our railways."

D—Railway Shop Manufacturing and Current Operating Economy

What facts are available indicating savings or waste from railway shop manufacturing?

To measure operating economy in the provision and use of equipment, we should know the cost in proportion to traffic handled—that is, equipment maintenance plus capital expenditures for equipment per 1000 traffic units. The method of using this ratio is illustrated in Table VIII in which the 10 largest roads are ranked as in previous tables according to the relative magnitude of their manufacturing activities. Opposite each road is the ratio of equipment expense to traffic and its rank in that respect. Road No. 1 is that having the

lowest ratio of equipment expenditures to traffic units.

The effort to trace, in the illustrative table, a relation between shop manufacturing and equipment expense

Table VIII
Equipment Expense in Proportion to Traffic
Average 1922 to 1928 Inclusive

Rank as to Manufacturing		Equipment Expense (Maintenance plus gross capital) per 1000 traffic units	
		Amount	
9	C., B. & Q.	\$2.73	
5	Penna.	2.21	
7	B. & O.	3.28	
8	I. C.	3.32	
2	C. & N. W.	3.43	
10	N. Y. C.	3.49	
6	Southern	3.51	
4	S. P.	3.55	
1	A., T. & S. F.	4.06	
3	C., M., St. P. & P.	4.53	

may be made by using again the comparison by groups of five. The group showing the lowest relative equipment expense ranked as follows in self-manufacture:

Rank in Equipment Expenditure		Rank as to Manufacturing
1	C., B. & Q.	9
2	Penna.	5
3	B. & O.	7
4	I. C.	8
5	C. & N. W.	2

Nos. 1, 3 and 4 in order of lowest equipment expenditure are among the five doing the least self-manufacture—Nos. 9, 7 and 8. Nos. 2 and 5 in equipment expenditure are Nos. 5 and 2 in self-manufacture. The five roads doing the most manufacturing came thus in order of least equipment expense:

Rank as to Manufacturing		Rank in Equipment Expenditure
1	A., T. & S. F.	9
2	C. & N. W.	5
3	C., M., St. P. & P.	10
4	S. P.	8
5	Pennsylvania	2

Nos. 2 and 5 in order of most manufacturing were, as previously noted, Nos. 5 and 2 in order of least equipment expense; whereas Nos. 1, 3 and 4 in order of most manufacturing were the three roads of the 10 with the largest equipment expenditure—Nos. 9, 10 and 8.

Quest of a Basis for Shop Cost Accounting

J. M. Davis, after many years in railway management, interrupted by experience in contract manufacturing, and now president of the Delaware, Lackawanna & Western, gave his conclusion at one of our conferences as follows: "It is my opinion that the railroads should devote their energies to the handling of transportation and that manufacturing should be left to the manufacturers." Commenting upon this statement, P. E. Crowley, president of the New York Central, wrote: "It is not the policy of our lines to manufacture any materials which can be purchased at equal cost from industrial concerns."

What constitutes cost is one of the difficult problems. It has been said that at present cost accounting is largely not a demonstration but an argument. It is necessary to separate any particular article and prove waste or saving if cost is to determine policy. The difference over method is chiefly in the definition of overhead. Many railway shop managers are said now to have accepted as overhead, taxes, insurance, indirect labor (such as oiling, repairing and other work on machinery and tools and moving material by hand or crane), indirect material (such as shop, office and hospital supplies) and other indirect expense (such as current for light, heat and power, power plant expense, compressed air and engineering service). Many of those who include these items are reported still to exclude in-

terest on plant investment and on inventories; maintenance of and depreciation on buildings, machinery, and shop furnishings; clerical work, indirect supervision and sundry services, such as watchmen, gatemen and janitors.

Overhead Costs

This aspect was prominent in a repair contract investigation by the Interstate Commerce Commission in 1926. Railway counsel urged the inclusion of overhead items which the Commission was excluding on the ground that in these cases existing plant was carrying these charges when idle, so that doing the work would not have occasioned them. The investigation was in charge of Commissioner McManamy. In the interview which is quoted above in another connection, given to the Railway Business Association, Mr. McManamy was asked this question: "What rule would apply in cases where new investment in buildings or material was made for the purpose of self-manufacture? When a carrier is deciding whether or not to enlarge its manufacturing plant and is comparing, as the basis of its conclusion, forecasted contract price with forecasted railroad shop cost, would not the carrier be expected to include the additional items incident to new investment, new maintenance, new insurance, diversion of supervisory or other officers' time, and any other definite increase of expense?" The Commissioner replied: "There is an offset that the work will be done more cheaply precisely because the new plant will be new, up-to-date and efficient. With that qualification, I would say yes, that a railway, in deciding whether to invest in new manufacturing plant, should include in its estimates of manufacturing cost interest on the investment, maintenance, insurance and actual diversion of supervisory officers' time involved."

Foresight on the Larger Issues

Manufacturers have gone further, urging that in the use of existing plant proportionate overhead should be charged against each piece of work. They endeavor to arouse the interest of railway officials in large issues beyond current operating cost—tendency as to enlargement of plant, which they say will involve perpetual new overhead in fat times and lean, with increase in taxes; tendency to transfer employees from contract to railway shops, intensifying the helplessness of the railway in time of strike; the danger that tests of quality will be less severe upon company-made products than upon contract goods; and the tendency to enfeeble contract industry, which officers are urged to regard as the railways' indispensable reliance, not alone as a dependable source of standard supplies but as the originator and developer of devices and methods for economy in conducting transportation. While stressing these broader considerations, the manufacturers have continued to contend that even on the score of immediate operating costs, many roads, if all costs are embraced, have opportunity for current economy in curtailment of shop manufacture.

Recent Experiences with Cost Studies

During the last two years several of the leading industries in this field have succeeded in persuading a number of railroads to their view. One group reports a decline in the manufacture of bolts and nuts; another the practical abandonment almost everywhere of paint-making. With permission of the executives of a dozen roads surveys of their manufacturing costs have been conducted by a committee collaborating with railroad representa-

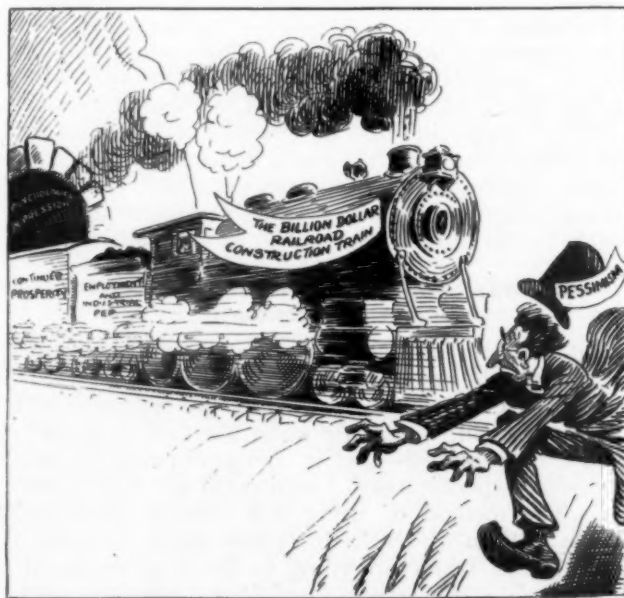
tives. It developed that under their system of accounting the cost of maintenance, depreciation, taxes, insurance and expenditures made for buildings and equipment, instead of being proportioned on manufactured articles to obtain the cost of production, was spread under various items in operating and capital accounts. The cost of producing such articles, the manufacturers pointed out, is paid by the railroad, in whatever schedule the expenditure is accounted for. Our attention is invited to the fact that in these cost studies no attempt was made to check the additional cost in the long run, where the railroad, using scrap of second-hand material in its shop, removes the article from service sooner than it would an article bought from a contract plant under strict requirements in regard to its quality and durability.

The committee has authority to publish only a partial report of the results of these surveys. One road which had regarded with satisfaction apparent economies in reclamation of scrap material is said to have decided not to replace when worn out the machinery now so employed. Another road, while not declaring an intention of limiting its present use of existing plant, is understood to have postponed indefinitely the construction of a new plant.

From two roads the committee has letters. The first is from the Boston & Maine, and was one of the last letters written by the late president, George Hannauer. He said: "The Boston & Maine is attempting to decrease the manufacturing of various types of products in its shops. Individual cost studies underlie the course pursued."

The other road is the Lehigh Valley. E. E. Loomis writes: "We are tending to decrease to a very large extent the manufacture of car and locomotive repair parts in our shops, owing to the fact that we can purchase the finished articles cheaper than we can manufacture them. Our practice is the result of actual studies checking the cost to manufacture in our own shops against the price at which the articles may be purchased. At the moment, I see no reason for changing our methods and it is altogether probable that we will still further reduce the manufacture of repair parts."

* * *



With the courtesy of the Chicago Tribune

It Has Never Yet Failed to Bring Relief

Alloy Steels Here to Stay

Increasing use in locomotive construction presents problems which should be solved by joint railroad research

IN discussing the economic advantages of alloy steels in locomotive construction at the Western Railway Club meeting, held at the Hotel Sherman, Chicago, November 18, Dr. William M. Barr, consulting chemist of the Union Pacific System, said that there is little doubt that alloy steels are here to stay and the important problem is to provide adequate lubrication which will prevent hot boxes and the development of surface cracks and progressive fractures in alloy-steel parts as a result of subsequent rapid cooling. Dr. Barr said, "The forging steel which will stand such abuse without checking has not yet been made." He outlined the uses of alloy steels for locomotive motion parts, steel castings, bolts, springs, boiler sheets and tubes and urged the establishment of a joint railroad research laboratory which can study the subject independently and unhampered by the intensive daily program of work followed by the individual railroad test department. An abstract of his address follows:

When power was small and movement slow, no better material for axles could have been selected than the refined iron so much used in early locomotives. Then came plain carbon steel to meet higher stresses and later many roads tried quenched and tempered steel. This treatment of large sections, however, introduced service troubles and was finally abandoned.

Chromium, vanadium and nickel have been successfully used in small forgings since the early days of the automotive industry. When the same practices were first applied to large forgings many difficulties were encountered which were not anticipated by either the steel maker or the forging manufacturer. The designer called for tensile properties beyond the range of plain carbon steels and the maker of alloy steels attempted to meet the tensile strength and high yield, apparently overlooking the properties that made the old iron axle most serviceable. It was easy to make a forging having a yield point above 60,000 lb. per sq. in., but they were satisfied with an elongation of 20 per cent and reduction in area of 40 per cent.

Structural defects were found in large forgings of both the chrome-vanadium and carbon-vanadium steel first offered, in the form of pipes, gas pockets and segregations which made this material dangerous to use.

A test piece might show physical properties entirely in accord with specifications and even an etched cross section show sound structure, while a service failure developed from gas pockets, segregation or even a pipe existing in another part of the forging. Co-operation between the steel makers, forging manufacturers and railway laboratories gradually eliminated these defects until sound alloy steel can now be obtained with the same degree of certainty as plain carbon steel.

With the removal of structural defects, attention was turned to failures occurring in sound forgings. The alloy steels are doubtless more sensitive than carbon steel to surface mechanical defects, and many progressive fractures developed from bad fillets, sharp shoulders, tool marks in journals due to hogging cuts, and oc-

asionally in rods from the careless use of a chisel or hammer, or the use of a welding torch. A campaign among the shop forces brought about wonderful improvement until such failures are now rare.

Not the least of the troubles with high tensile forging steels in locomotive service has resulted from lack of lubrication. In journal bearings and crank pins, overheating frequently occurs as a result of loss of lubrication. Sudden cooling of such bearings develops fine cracks in the surface which in time grow into progressive fractures resulting in failure or removal of the axle or pin before complete failure. Similar heat checks will develop in a journal with repeated heating and cooling though the cooling is not hastened by the application of cold water.

The forging steel that will stand such abuse without checking has not yet been made. Observations lead us to believe that because of the rapid growth of progressive fractures from repeated shocks, increased ductility of the forging steel aids in combating this condition. It is to be noted in the case of vanadium steel that improved heat treatment has raised the ductility until we now have no difficulty in obtaining forgings with a minimum elongation of 25 per cent and reduction of area of 50 per cent. With such forgings our failures have been noticeably reduced.

Nickel steel forgings are now in use on several roads. The use of nickel as an alloy to increase the strength of the steel has permitted lowering the carbon content, making it possible to obtain a high degree of ductility while retaining a yield point high enough to meet the requirements of the designer. The bend tests show toughness and the steel has good machining characteristics. Whether or not a steel with such properties will be slower in developing heat cracks and progressive fractures must be determined by longer service tests. We believe that the increased ductility and toughness will result in retarding the progress of heat checks. Examination of a heavy crank axle that had been severely overheated and left in service for some time after the heating occurred showed the maximum depth of the cracks to be one-eighth of an inch.

There is little doubt that alloy steels for this service are here to stay, and the important problem still demanding solution is that of lubrication.

While the large forgings make up the largest tonnage of alloy steel in the locomotive, the same changes that have brought them into use have been responsible for new alloy steels being applied to other parts of the locomotive.

On some of the larger engines the iron or mild steel bolt has been replaced by low carbon nickel steel or a chrome-nickel steel such as S. A. E. specification 3130. This steel gives good physical properties by normalizing with ample strength for heavy bolts. This steel so treated will give a tensile strength of more than 100,000 lb. per sq. in. The same steel annealed will show a tensile strength above 80,000 lb. per sq. in. The toughness obtained by the use of both chromium and nickel gives

excellent shock resisting properties. This material permits quenching, but such treatment is not to be recommended for bolts.

With the great weight and size of present day locomotives, the trend is now toward the development of more power by increased boiler pressures. Most of the engines now in use operate at boiler pressures of 200 to 220 lb., but some have recently been built carrying pressures as high as 280 lb.

In order to build boilers to withstand such pressures safely without increasing the thickness of the shell, designers are giving consideration to the use of alloy plates. Alloy steels containing two per cent and three per cent of nickel have been used with satisfactory results. Plate has been made from steel containing one per cent of chromium with .15 per cent vanadium, which shows satisfactory physical properties. It is quite probable that such steel will be tested in boiler construction. In the construction of the boiler shell, strength and workability must be first considered.

Some interesting tests, however, have been made, showing impact resistance of some of the alloy steels as compared with carbon boiler steel at elevated temperatures, the results being very much in favor of the alloy.

The use of an alloy steel shows many desirable properties. Cases of cracked side sheets after short service in high pressure boilers have appeared because of the temperatures going above the blue brittle range of the steel. This experience emphasizes the necessity for developing a new firebox material. Here again the two per cent and three per cent nickel steels have been used, with indications that it will show distinct advantages in service over the present carbon steel. The chrome-vanadium plate referred to has also been recommended by manufacturers but we have no records of service tests on this material.

Corrosion of boiler flues has long been a subject for serious study. Improvement of water supplies has accomplished much in extending mileage obtained between flue renewals, but the problem of removing oxygen from cold boiler feedwaters has not yet been satisfactorily solved. It is, therefore, desirable to have a material for boiler tubes that will be resistant to corrosion, if such a material can be produced at a cost that will permit its use. Makers of steel for boiler tubes have put various alloys on the market, some of which have been prohibitive in cost, and others have not shown enough increased life to justify their use. Experiments are now being conducted with boiler tubes containing nickel as an alloy, and others with tubes containing copper and molybdenum. Both of these show some advantage over plain carbon-steel tubes. Examination of a set of flues recently removed from a Pacific-type passenger locomotive after 205,000 miles of service shows most of the tubes to be in good condition. Ordinarily a large percentage of steel tubes after having given 180,000 miles in the same service, must be scrapped. Of 208 tubes in this engine, 40 tubes were found unserviceable, while 168 tubes were returned to service. Fatigue value is an important factor in a long lived boiler tube because of the tendency of the long tubes to develop cracks adjacent to the sheet. Whether or not the alloy tube has an advantage over the steel tube in this respect has not yet been definitely determined.

Many failures have resulted in plain carbon-steel locomotive castings, especially in those that are of such form as to make pouring difficult. Lack of uniformity in the casting is among the chief defects. A large degree of success in improving this condition has resulted from the addition of from $\frac{1}{2}$ to 1 per cent nickel together with some other elements used as scavengers,

which do not appear as alloys. This practice, combined with improved foundry work, has given excellent results not only by furnishing a casting of more uniform material but one of higher physical properties. Careful annealing of such castings has been responsible for much improvement in the physical properties.

Although carbon steel is still in general use in spring construction, much work has been done to develop a spring material of alloy steel that will increase the life of the springs and reduce breakage. Chrome-vanadium has probably been used more than any other for this purpose.

For motion-work parts or other places where there is excessive wear, alloy steel is used with good results. Chrome-nickel steel forgings to S. A. E. specification 3145 have been very satisfactory.

Steel conforming to this chemistry when heated slowly to 1,500 deg. F. and quenched in oil, then drawn at from 950 deg. to 1,000 deg. F., gives an excellent material for motion-work parts.

To take the place of case hardened material which is sometimes used for link blocks and pins, and crosshead guides, the new alloy known as Nitralloy is now under test on a number of roads with promise of good results. It is readily forged, readily heat treated and takes a high degree of finish by ordinary shop methods. A wide range of physical qualities can be secured depending upon the type of heat treatment applied. This steel is forged, treated to the desired physical properties, and machined, after which the process known as nitriding is applied to produce a high degree of surface hardness. The material must be finish machined complete before nitriding, as after hardening, further machining is impossible. The surface develops a degree of hardness between 900 and 1,000 Brinell. The process of nitriding is carried on in a sealed container where the material is treated with anhydrous ammonia under atmospheric pressure at temperatures varying between 900 deg. and 1,000 deg. F. It is necessary to hold this material under treatment sometimes as long as 90 hours.

This process produces an extremely hard surface while the strength of the core has not been affected due to the low temperatures used. The advantage of this material over case hardened steel is that it can be finish machined before treating, and there is no distortion produced by the process. It gives a surface that does not spall or flake off and will retain most of its hardness up to 1,450 deg. F., with no loss up to 932 deg. F. The slight change in thickness which occurs is so uniform that it can be allowed for in the machining. While this steel has not yet been used in many locomotive parts, it shows great possibilities wherever surface wear is the chief factor and is worthy of careful consideration.

It is evident from what has been said that much work has been done on the development of the various alloy steels and their application in locomotive construction, both by the producers and the railway laboratories. There is so much still to be accomplished that, with the railway laboratory forces burdened with so much routine work of such great variety, progress is necessarily slow. These problems with the many other material problems of the railroad demanding solution, make it appear that the railways of the country could not do better than to pool their efforts, and following the example of a number of other large industrial organizations, establish a research laboratory in which such problems may be independently worked out unhampered by the daily operating cares that now infest the railway laboratories of the country. Such an organization would make large returns on the investment, would speed up results, and would be for the good of all.

Railroads and Ocean Carriers Should Be Associated*

*Intimate connection would have stimulating effect
on foreign commerce of interior states*

By Edward N. Hurley

War chairman, U. S. Shipping Board and chairman of the Board of the Hurley Machine Co.

SINCE 1921, I am informed, the public has received the benefit of a saving in freight charges amounting to \$4,879,665,000. The increased efficiency of railway management and labor and the progress of railway engineering manifested in the last few years could not have made any such showing if it had not been for the co-operation of the traffic men who have supervised the continuous flow of the freight. I know of nothing more remarkable in human association than the degree of harmony which has been attained in recent years between the producers of raw materials, manufacturers and the transportation agencies. As an industrialist beset daily during a long and arduous business experience with the necessity of reducing production costs, I would be both ungracious and ungrateful if I did not seize this opportunity to voice my hearty appreciation of the great strides which railroads have made since the war.

I venture to say that many of you recall periods in which from 20 to 30 per cent of your time and energy was devoted to frantic and often futile efforts to obtain delivery of raw materials, and in which you engaged in the quest of cars in which to ship the products of your plants. Today the great majority of industrialists can count upon the railways physically connected with their plants as if they were parts of the plant machinery. Cars move in and out of factory premises in perfect unison with the movements of men and motors within the plants. Production schedules can be fitted into railway schedules and time tables, affording accurate schedules of delivery. In dollars and cents, this traffic betterment has produced an enormous dividend for the American people in the form of reduced interest charges upon the inventories of producers of raw materials, manufacturers and merchants and also has materially reduced capital charges upon goods in transit.

In the course of a year, commodities valued at approximately \$68,000,000,000 are directed over the rails from producers to consumer. It is obvious that the speed with which goods of such enormous value are delivered is a fundamental matter of national concern, because every unnecessary day of transit adds appreciably to the price which the final consumer must pay, thereby restricting the buying power of the people and halting the progress of our industries. Railway statisticians have calculated, on the basis of the 1927 traffic returns, that on almost any day about \$1,500,000,000 worth of goods are in transit upon American railways. Computed at five per cent, the interest charge upon the value of such goods is more than \$205,000 a day. Was there ever a better statistical restatement of that fundamental adage of business, "Time is money?" From observations which I have been able to make at first hand, over many years, I am satisfied that since 1920 the efforts of the traffic men and

transportation agencies of America have reduced the amount of working capital necessary for the conduct of American business by 25 per cent. I am satisfied that the achievements of traffic and transportation men have added as much, if not vastly more, to the income and effective purchasing power of the American people as have all the contemporary contributions of scientists, engineers and management in the field of production—whether in farm, factory, forest or mine. This is primarily a triumph of the human will, because in the field of transportation the factors of human brains and brawn cannot be replaced by engineering and machinery to the same extent that is possible in many departments of production.

For some time I have been urging upon the railway heads of the United States the desirability of those great trunk lines which have invested millions of dollars in port facilities becoming more closely associated with ocean-carrying trade, either by the direct ownership of shipping lines or by acquiring stock interests in existing American steamship companies. I can think of nothing which is better calculated to promote American interests upon the sea, and nothing which is more certain to bring the ocean-carrying trade of all nations the benefits of transportation knowledge and efficiency which have been developed by the American railroads. Despite the great handicaps under which our nation has labored with regard to international ocean-borne commerce, we have developed a number of outstanding shipping executives.

However, it is obvious that many of the shipping companies cannot command the great financial power inherent in our railway trunk lines; and in proposing that our railroads go into the shipping business, or become more closely affiliated with our existing shipping companies, I propose something which should redound to the benefit of both. The maximum utilization of their port facilities should be a matter of concern to the railroads, and this requires a reduction of the turn-around time of the ships connecting with the railroads at these docks. By owning ships directly or indirectly, railroad executives will be in a position to initiate efficiency of untold value in thus co-ordinating the movement of freight by rail and ship. It is hardly necessary to point out that the larger railways already have at home and abroad the organizations for traffic solicitation in routing; and if given the benefit of these shipping lines, will be saved a vast amount of overhead expense. When our railroads become more intimately connected with ocean traffic, it is inevitable that more merchandise will be shipped to all foreign ports on through bills of lading.

The stimulating effect of this upon the foreign commerce of interior states and industrial plants is self-evident. I hope to see the day when our trunk-line railroads will advertise 14-day delivery of merchandise between Chicago and London. I believe that the present process

* Abstract of an address made before the Traffic Club of Chicago on November 20.

of merging the British and other foreign mercantile marines into large units covering many different trade routes is of importance to us and also that it suggests the urgent need of our railroads going into the shipping business in order that we may have shipping lines of sufficient size and diversity of trade routes to place our mercantile marine on a basis comparable to that of the other great shipping countries. There is no doubt that the movement to combine shipping lines into larger units will continue to be vigorously pursued by foreign shipping leaders.

I. C. C. Without Power To Order Union Station

WASHINGTON, D. C.

THE Interstate Commerce Commission has no jurisdiction to require railroads to abandon their existing stations and terminal tracks in a city and to combine for the purpose of establishing in lieu thereof a new union station, the Supreme Court of the United States held in a decision rendered on November 25 in the Los Angeles union station case. The decision reversed that of the court of appeals of the District of Columbia, which had held in substance that the commission was vested with supervisory control of the three carriers involved, the Atchison, Topeka & Santa Fe, the Los Angeles & Salt Lake and the Southern Pacific, and that they were subject to an order requiring the construction of the union station and the necessary connecting tracks which the California Railroad Commission and the city of Los Angeles sought to have the federal commission issue.

"To attribute to Congress an intention to authorize the compulsory establishment of union passenger stations the country over without special mention of them as such, would be most extraordinary," the opinion by Chief Justice Taft said, replying to contentions that the power could be found in Sections 1 and 3 of the interstate commerce act.

The city of Los Angeles sought from the supreme court of the District of Columbia a writ of mandamus compelling the commission to consider the evidence before it in the Los Angeles station case for the purpose of determining whether it should order the three roads to build and use the station on the Plaza site, and, after consideration of the evidence, to make such an order as the facts may require. The commission had held that it had no power to issue such an order but it had issued what the court refers to as "hypothetical" certificates finding that public convenience and necessity require the track changes that would be involved to reach and serve any union station within the Plaza "which may be constructed in accordance with a lawful order of the state commission" and that the expense involved would not impair the carriers' ability to perform their duties to the public. The supreme court of the district dismissed the petition for a mandamus and the court of appeals reversed its judgment and remanded the cause for further proceedings. The commission appealed from the latter decision.

In an earlier phase of the same case the Supreme Court had held that the necessary relocation of tracks required a certificate of approval by the commission, as a condition precedent to the validity of any action by the carriers or of any order by the state commission and that until the commission had acted the carriers could not be required to provide a new union station as ordered by the state commission. Referring to that opinion the

court now says: "It was as far as possible from the purpose of the court in its opinion to indicate its views of the powers which the commission could exercise adversely to the carriers in compulsory proceedings."

"The sole question for decision," the court said, "is whether the Interstate Commerce Commission has jurisdiction to order the construction of the union station." The opinion continues in part:

In weighing the effect of the transportation act, it should be noted that in this important measure affecting associations between interstate carriers of a compulsory character, there is nowhere express authority for the establishment of union passenger station compulsory or otherwise. Emphasis is put on physical connection between the tracks of one carrier and others if permitted by the Interstate Commerce Commission and if properly paid for, either by agreement or condemnation, by the carrier enjoying the use of the track of the other companies. But it is limited in extent to connections with the terminals of other companies within a reasonable length.

Without more specific and express legislative direction than is found in the act, we cannot reasonably ascribe to Congress a purpose to compel the interstate carriers here to build a union passenger station in a city of the size and extent and the great business requirements of Los Angeles. The Commission was created by Congress. It was to be clothed with the power to require railroads to abandon their existing stations and terminal tracks in a city and to combine for the purpose of establishing in lieu thereof a new union station, at a new site, that power we should expect to find in congressional legislation. Such authority, if conferred in Los Angeles, would have application to all interstate railroad junctions, including the numerous larger cities of the country, with their residential, commercial, shopping, and municipal centers now fixed and established with relation to existing terminals. It would become a statute of the widest effect and would enter into the welfare of every part of the country. Various interests would be vitally affected by the substitution of a union station for the present terminals. A selection of its site from the standpoint of a city might greatly affect property values and likewise local transportation systems. The exercise of such power would compel the carriers to abandon existing terminals, to acquire new land and rights of way and enter upon new construction, to abandon large tracts and to sell territory of the same extent as no longer necessary for the use of the carriers.

We cannot agree with the Court of Appeals of the District in its disposition to view section 3, paragraph 3, as vesting the Interstate Commerce Commission "with almost unlimited power in the matter of establishing terminals and union stations for the proper interchange of traffic between the converging interstate railroad lines." The words "reasonable, proper and equal facilities" are, of course, comprehensive enough to include not only trackage, but terminal facilities described as extending a reasonable distance outside of the terminal, but hardly to give the Commission "unlimited power" in the building of union stations.

To recognize what is here sought as within the power of the Commission to order to be done in each of all the great cities throughout the United States and to sustain it as legal, without provision for effective restraint by the carriers, or other interests, would expose the community to possible abuse, with nothing but self-imposed restraint on bureaucratic extravagance.

When the interest of a great city in its improvements is to be promoted entirely at the expense of railroads that enter it, Congress would be expected to hesitate before it would change discretionary leave for the erection of such stations into positive command. In such a case the expenditure of a large amount of capital will not bring with it corresponding increase in the railroad revenues. If Congress had intended to give an executive tribunal unfettered capacity for requisitioning investment of capital of the carriers and the purchase of large quantities of land and material in an adverse proceeding, we may well be confident that Congress would have made its meaning far clearer and more direct than in the present meager provisions of the transportation act. The suggestion of complainants is that out of provisions for local union of main tracks and switching tracks we should use our imaginations and develop them into provisions for giant union passenger stations. It is true that the railway systems may be united through switches and connecting tracks in physical connection, but this has not been held to justify great monumental structures, extended in their complicated machinery and superficial extent and expense. There is a difference of real substance between such connecting tracks and switches and junctions and a passenger metropolitan union station. The latter calls into being a new entity naturally requiring new legislative authority.

Looking Backward

Fifty Years Ago

The New York, Lake Erie & Western [now the Erie] has completed a second main track on the Delaware division, providing a continuous double track from Jersey City, N. J., to Burns, N. Y., 339 miles.—*Railway Age*, November 27, 1879.

The tendency to increase the weight and capacity of rolling stock is shown in the new freight cars placed in service on the Pennsylvania, which weight 20,800 lb. and are intended to carry 40,000 lb. They rest on iron trucks a little heavier than those in ordinary use, have axles $4\frac{1}{2}$ in. in diameter and wheels 20 lb. heavier than usual.—*Railway Age*, November 27, 1879.

The railway stock market last week was subjected to an extraordinary excitement; the result of a determined effort by the "bears" to depress certain lines of securities for temporary purposes. Fortunes were made and lost, and yet absolutely nothing had occurred to change the intrinsic value of the securities. As examples, Erie stock fluctuated between 39 and 32, Delaware & Hudson between $73\frac{1}{2}$ and 59, Iron Mountain [now part of the Missouri Pacific] between 47 and 34 and Jersey Central between 77 and 70.—*Railway Age*, Nov. 27, 1879.

The Atchison, Topeka & Santa Fe and the St. Louis & San Francisco have entered into a compact for the construction of a railroad from the terminus of the Santa Fe at Santo Domingo, N. M., on the Rio Grande river, to the Pacific Coast, on the thirty-fifty parallel and under the charter of the Atlantic & Pacific. The St. Louis & San Francisco is to make a junction with the Santa Fe at a point not farther west than Wichita, Kan., whither it is now building an extension.—*Railway Age*, November 27, 1879.

Twenty-Five Years Ago

W. T. Noonan, formerly superintendent of the Minneapolis & St. Louis at Minneapolis, Minn., has been appointed general superintendent of the Buffalo, Rochester & Pittsburgh at Rochester, N. Y.—*Railway Age*, December 2, 1904.

The completion of the last stretch of double-tracking on the Fort Wayne division of the Pennsylvania, between Columbia City, Ind., and Larwill, 8 miles, which has just been accomplished, gives that railroad a complete double-track line from Chicago to Pittsburgh, Pa.—*Railway Age*, December 2, 1904.

Ten Years Ago

Continuation for five years of the present federal control of the railroads for the purpose of affording a more complete test of government operation was urged by Senator Robert M. LaFollette in a minority report on the Cummins bill, submitted to the Senate.—*Railway Age*, December 3, 1919.

When the railroads are returned to private control the heavy traffic will continue, present facilities will be inadequate and to cope successfully with the situation considerable co-operation between the various roads will be necessary, Walker D. Hines, director general of the Railroad Administration, declared in a recent address at Chicago.—*Railway Age*, December 3, 1919.

H. A. Scandrett, traffic assistant to the regional director of the Central Western region and assistant to the director of traffic and the commerce counsel of the Union Pacific, has been promoted to valuation counsel and commerce counsel of that road. George H. Minor, assistant general solicitor of the Erie, with headquarters at New York, has been appointed vice-president and secretary. George H. Ingalls, traffic manager of the New York Central, Western lines, has been elected vice-president in charge of traffic at New York.—*Railway Age*, November 29, 1919.

New Books

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Carnegie Shape Book. Tenth edition of the handbook containing the profiles of the sections rolled on the structural, bar, plate and rail mills of the Carnegie Steel Company, Pittsburgh, Pa., together with tables and other data relating to these products. This edition contains profiles of the new Carnegie beam sections. p. 377. Apply.

Considerazioni Militari Sull' Elettificazione Delle Ferrovie, by Alberto Stabarin. Military aspects of electrification of railroads. 16 p. Pub. by Tipografia Regionale, Rome, Italy.

First Special Indian and Eastern Number, Railway Gazette, November 11, 1929. Describes in detail the five Indian lines owned and managed by the State, i.e., the North Western, the East Indian, the Great Indian Peninsula, the Eastern Bengal, and the Burma railways, together with the Bikaner, Mysore, Jodhpur and Junagad railways, the Ceylon Government and the Federated Malay States railways. The map on page 16A shows the line with different gages in different colors, together with total mileage and mileage of each gage. A section of illustrations, p. 33-112 shows important features of the lines described. 152 p. Published by Railway Gazette, London, England, 2 shillings, sixpence.

The Problem of Weak Railroads, by James M. Herring. Chapter headings are: The Rule of Rate-Making of 1920, the Weak Road Problem, Valuation for Recapture, The Recapture Clauses in Operation, Consolidation as a Solution of the Weak Road Problem, The Problem, One of Individual Railroads, and Conclusion. A thesis at the University of Pennsylvania. 176 p. Publisher not given but probably available from Author, Philadelphia, Pa.

The Third Route, by Sir Philip Sassoon. The first route from Europe to India was opened by Vasco da Gama, the second by DeLessups with the completion of the Suez Canal, and this book discusses the various events of the establishment of the air route of the present. 279 p. Pub. by Doubleday, Doran, Garden City, New York. \$3.

Periodical Articles

Depreciation Accounting Methods for Public Utilities, by L. R. Nash. Discusses depreciation accounting history, the two present standard systems (I. C. C. and state commission), executive responsibility, size of retirement reserve, allocation of depreciation costs, financial advertising, results of accounting standards. Stone and Webster Journal, November 1929, p. 613-644.

The Future of the Great City, by Stuart Chase. Some comments on transportation, rail and otherwise, in this un-seriously serious article, may be of interest. Harper's, December 1929, p. 82-90.

The Operation and Maintenance of Railway Track in Districts of Heavy Snowfall, The author is Chief Engineer, Operation Dept., Canadian National Railways. This paper was presented before the World Engineering Congress, Tokyo. Engineering Journal, November 1929, p. 588-590.

A Railroad Born in Sin, by Ching-Chyn Wang. A brief history of the Chinese Eastern with a suggestion for its future. World's Work, December 1929, p. 62-65.

Results of Arbitration Cases Involving Wages and Hours, 1865-1929. "There is here presented a statement giving the results of all the labor arbitration cases in the United States, involving wages and hours of labor, of which the Bureau of Labor Statistics has record." The review is grouped under pre-war period, 1865-1914, war period, 1915-1920, and post-war period, 1921-1929. Monthly Labor Review, November 1929, p. 14-20.

Odds and Ends of Railroading

According to the Department of Commerce, the first chair-club cars have just been placed in regular service in Cuba, operating between Havana and Santiago.

Rides a Million Miles

R. T. Green, brakeman on the Louisiana & Arkansas, recently completed 31 years of service on that line. During all these years he has made an accurate record of all miles made and compensation received. His statistics show that he has worked 9,805 days, been paid \$47,711.90 and traveled 1,132,710 miles.

World's Champion "Snake"

The Delaware & Hudson requests that all other railroads claiming the world's longest waybill be advised that the championship belongs to the D. & H., as the result of a waybill issued recently covering a shipment originating in St. John's Park, N. Y. This waybill was 50 ft. long, and covered no less than 1,364 items.

Hole-in-One Club

The golfing season this year almost got by with no rail-roader making a hole in one. Charles Morefield, yard clerk for the Chesapeake & Ohio at Ashland, Ky., however, saved the season from being a complete wash-out for railway golfers, by plunking in a 196-yd. tee shot, on No. 4 hole, at the Gartin Golf Club in Ashland.

Russian Railroading

A locomotive is still regarded as little short of a miracle in parts of Russia, and at least 40,000 people assembled at Alma-Ata, in Turkestan, to see the arrival of the first train on the newly constructed Turkestan-Siberian railway. Hundreds arrived on horseback and many walked for several days from outlying villages. It was estimated that at least three-fourths of the gathering had never before seen a locomotive.

A Presidential Duty

E. W. Beatty, chairman and president of the Canadian Pacific, also numbers among his other offices that of chancellor of the McGill university, Montreal. In the latter capacity, he had the pleasant duty, recently, of conferring an honorary degree of doctor of laws upon Ramsay MacDonald, prime minister of Great Britain, when that dignitary visited Montreal in the course of his American tour.

Fragrant Freight

That fresh cut flowers form a portion of freight traffic is indicated in the shipments over the Southern Pacific. From September 1 to October 20 that company shipped approximately 200 carloads of cut flowers from San Mateo county, Cal., directly south of San Francisco, to Chicago, New York, Boston, Mass., New Orleans, La., and other distant cities. During the week ending October 19, a total of 46 carloads of flowers were moved to the East.

Engineering Progress

When the Charwood Forest railway was first opened in England, nearly a century ago, the event was made the occasion for great rejoicing. The first train started down the line amid loud cheers, waving of flags and general excitement. All went well until the first overhead bridge was reached. Then it was discovered that the cars were too high to pass under the bridge. Eventually everyone in the neighborhood hove to with picks and shovels and lowered the tracks sufficiently for the train to have clearance, but, by that time, all

the notables who were passengers on the first train had grown disgusted and left the affair flat, proceeding home on foot, and predicting that these new-fangled railways would never amount to much.

Not Hired to Knock

A traveling man called up the station agent an hour before train time and asked if the train was on time. He was told it was.

Arriving at the station a few minutes before it was due to arrive, he saw it was marked up an hour late. He went into the station and to the ticket window.

"I thought you told me that train was on time?"

"I did tell you it was. What do you think the railroad is paying me for, anyway—to knock its business?"—Santa Fe Magazine.

Father and Sons

ELMIRA, N. Y.

TO THE EDITOR:

In looking over "Odds and Ends of Railroading" in the August 31 issue of the "Age," I read the story of "Fathers and Sons in Cabs."

Some years ago, while working on the Pittsburgh division of the Pennsylvania, I recall distinctly a case where a father and son held the position of engineman and fireman. What calls it distinctly to my mind is the fact that one of them would always complain that the particular combination of father and son in the same cab was not to the best advantage.

G. J. RICHERS,
Master Mechanic, Pennsylvania.

The Singing Fireman

Howard Melaney, "Singing Fireman of the Northern Pacific Railway," today continues to maintain his distinction as radioland's long-distance traveler, and his voice is reaching each week to the far distant corners of the continent. A flood of "fan" mail continues to follow him from station to station. In one recent program over radio station WLW, at Cincinnati, among the letters received were one from Portland, Ore., another from Clarksdale, Miss., a third from Wilmington, Del., and another from Augusta, Ga., showing how far-reaching are his programs. Mr. Melaney now sings on Monday nights at station WOC, Davenport, Iowa; Tuesday nights, KMOX, St. Louis; Wednesday nights WLW, Cincinnati; Thursday nights, WLS, Chicago; and, beginning October 19, he will sing each Saturday night over radio station WCCO, Minneapolis-St. Paul. In addition to these radio programs, Mr. Melaney is in demand in the various cities in which he sings to participate in concert programs.

"In the Midst of Life—"

A railroader seldom leaves the service for any other profession. He may retire when his days of usefulness are over, but he remains a railroader until the end. And even in death he hates to sever connections with railroading. W. C. Barnhardt, manager of a cemetery in Little Rock, Ark., can attest to that. Some time ago, he noticed that when railroaders bought lots in the cemetery, they almost invariably chose sites on the eastern slope. None of them explained this choice, but it was easy to deduce the reason. The eastern slope overlooks the tracks of the Missouri Pacific and the Chicago, Rock Island & Pacific. The eastern slope has now been set aside for exclusive sale to railroaders, and a monument has been erected, bearing this inscription:

"To those sturdy artisans who have given of their brawn and brain to bring to our civilization the blessings of modern transportation—the railway men—this memorial is affectionately dedicated."



The West Shore Yards, Weehawken, N. J.

AN ARTIFICIAL ICE PLANT of the Texas & Pacific, which was under construction at Fort Worth, Tex., was destroyed by fire on November 5; estimated loss, \$100,000.

THE ALLEGHENY DIVISION of the Pennsylvania, J. J. Rhoads, superintendent, has, for the second time this year, been awarded both the gold and the silver safety banners, which are given every three months to one of the 12 divisions of the Central Region. In the quarter under review, only five accidents occurred among the 1,800 employees.

PAUL D. MALLAY, chief engineer, Transportation Department, of the Johns-Mansville Corporation, 292 Madison avenue, New York, has been appointed secretary of the Railroad Division of the American Society of Mechanical Engineers, succeeding Marion B. Richardson, associate editor, Mechanical Department, of the *Railway Age*, who has resigned.

A TRAIN OF THE UNION PACIFIC, the westbound limited, was derailed and robbed on the night of November 25, at a point three miles east of Cheyenne, Wyo., in a manner similar to the robbery on the Southern Pacific near Saugus, Cal., on November 10, but with less serious results. The crime was committed by a single robber who, by removing spikes, derailed the train; and as soon as it had stopped, the man hurried through the cars and robbed the passengers, escaping shortly afterward. Reports do not give the amount of valuables taken nor is mention made of any injuries due to the derailment.

JURIES IN MISSOURI COURTS continue to award large judgments in personal injury damage suit cases against railroads. In the United States district court at St. Louis on November 15 a judgment for \$43,000 was awarded against the Southern in favor of Edward Walter, eight years old, who lost a leg when run over by a locomotive in March, 1927. The St. Louis circuit court has awarded Hurburt Carmer, a laborer, \$30,000 in a case against the St. Louis-San Francisco for the loss of the toes of his right foot. Testimony at the trial

showed that Carmer in August, 1928, while unloading a car of coal at Festus, Mo., lay down in the shade of the car to take a nap. A switching locomotive moved the car and it ran over his foot.

Activities of the Superintendents' Association

The Superintendents' Association has selected June 16-19, 1930, as the dates for its thirty-seventh annual meeting, which will be held at Minneapolis, Minn. The convention will meet from Monday to Thursday, inclusive, allowing Friday and Saturday for inspection trips to the head of the lakes, the Iron Range and possibly to Winnipeg. It is expected that special trains will be operated from both St. Louis and Chicago for the convenience of members enroute to the convention. Owing to conflict with other conventions, the Railway Equipment Manufacturers' Association will present no exhibit at this convention.

The following subjects have been selected for consideration by committees:

The giving of closer attention by superintendents to the locating of industries, industrial belt lines and industrial switching leads, and closer co-operation by the industrial and operating departments in locating industries and track layouts to reduce operating expenses.

How to handle a constantly increasing business without increasing facilities.

The extension of the use of the No. 19 train order.

Train dispatching by signals.

The advisability of changing automatic block signals from red (stop and proceed) and green (proceed), to yellow (proceed with caution to next block) and green (proceed).

Requirements for the employment and promotion of employees.

The prevention of grade-crossing accidents.

The preparation of a simple form to give superintendents a daily reflection of operating costs.

The heavier loading of cars.

Safety, with particular reference to the prevention of accidents in the transportation and maintenance of way departments.

The increased use of the motor coach, motor truck and airplane as auxiliary agencies in railroad transportation.

The problem of the light traffic branch line and of main line passenger service.

The use of container and consolidated cars for L.C.L. freight.

Port Development Proposed for Jersey City

According to an agreement reached between the Port of New York Authority and the City Commission of Jersey City, the former body is to work out plans for the development of the "Little Basin"

area and adjacent city-owned property fronting on the Hudson river in Jersey City. The Port Authority has agreed to undertake to acquire the Little Basin, the New York harbor terminal of the abandoned trans-Jersey Morris Canal, from the state of New Jersey and to finance and develop the property in accordance with an engineering plan favored by the city. Jersey City would then lease the completed terminal from the Port Authority for an amount sufficient to pay annual interest and amortization charges and in turn sublet it for operation, until such time as the bonds to be used to finance the construction are paid, when ownership of the piers and terminal will revert to the city.

The tentative engineering specifications for the new development, which will extend along the North river from the foot of Grand street south to the Little Basin and thence to South Cove at the foot of Henderson street, involve the construction of four main units, as follows: Four steel piers, 1,000 to 1,200 feet long; a marginal street railway connecting each of the piers with all five of the trunk line railroads terminating in Jersey City; a marine basin at South Cove for freight steamers and harbor craft, and a new highway similar to West street in New York City to run north along the waterfront from the Little Basin directly behind the new city piers and eventually to the Jersey City entrance of the Holland vehicular tunnel and the new piers now under construction by the Erie and Pennsylvania.

C. N. R. Contemplates Large Expenditures in 1930

Confidence in the essential soundness of business conditions in Canada is expressed in the policy adopted by the Canadian National of going forward for next year with the purchase of equipment for Canadian lines to the extent of \$20,000,000, only slightly under the purchases and construction carried out during the year 1929. The 1930 program will in addition include a continuation on a substantial scale of branch line construction in Western Canada. Announcement to this effect was made here today.

Sir Henry Thornton and the board of directors of the Canadian National last

week approved the budget of the railway for 1930. This had been under careful consideration for some time, and the Canadian National will proceed with its important capital expenditures during the next twelve months in a manner expressive of complete confidence in the future of the country and its business fabric. For the last few years the work of re-equipment of the Canadian National has been proceeding steadily, and this will continue throughout 1930.

The branch line program authorized by parliament in 1929 will be proceeded with and in connection with this, too, some \$10,000,000 will be spent.

Work will be commenced on the Montreal terminal plan and this will be continued not only through 1930 but for a period of probably five years, until that great undertaking is completed. Other work at Montreal will include new construction at Point St. Charles shops and at Montreal stockyards.

The C. N. R. system will extend its rock ballast program very materially along its main lines during the year, with extensions also in its automatic signal equipment.

At Hamilton, Ont., the building of a new station and other terminal facilities will be pushed forward, the tenders for this work now being complete. Building construction of a major character will go on in connection with the Canadian National hotels system. The program includes the new hotel of the company at Vancouver, a new hotel at Saskatoon, a new hotel at Charlottetown, Prince Edward Island, and the early completion of the new combined station and hotel at Halifax.

Preparatory work will be done in connection with terminal extensions at Winnipeg and Edmonton.

The budget of the railway will go before parliament in the ordinary course of events when it meets in February.

T. P. & W. Strike Continues

Approximately 500 conductors, trainmen, firemen, yardmen, telegraphers, and maintenance of way employees of the T. P. & W. went on strike on November 13. Despite newspaper reports to the contrary, the members of the Brotherhood of Locomotive Engineers have not gone on strike and they have given assurance that they are satisfied with their contract and will remain on the job.

The strikers walked out because, they said the T. P. & W. did not recognize the six shop craft organizations affiliated with the American Federation of Labor. The shop of this road at East Peoria, Ill., had not been unionized since the shopmen's strike of 1922 and up to a few months ago there was no difficulty in this regard, so far as the relationship between the shopmen and the management was concerned. However, it has recently become known that an agreement had been reached in January, 1929, by all the labor organizations, except the B. of L. E., to attempt to force the road to recognize the shop crafts. The matter finally came to a head two weeks ago, owing to the refusal of the management to recognize or deal with these shop craft organiza-

tions. A strike ballot was taken and the walk-out resulted.

On November 18, the management of the T. P. & W. published the following announcement in the Peoria newspapers:

All employees of this railroad who may be affiliated with the Order of Railway Conductors, the Brotherhood of Locomotive Firemen and Engineers, the Brotherhood of Railway Trainmen, the Order of Railroad Telegraphers, the Brotherhood of Maintenance of Way Employees, and who went out on strike on November 13, 1929, should report for duty on or before 10 a. m., Wednesday, November 20, 1929, if they expect to have any further employment with this company. Those whose services may be retained will be subject to the seniority of those now employed.

The majority of the telegraphers, agency forces and maintenance of way men returned to their jobs, but practically all of the former staff of conductors, trainmen, firemen and yardmen are still out.

While no live stock or perishable freight is being moved, a considerable volume of other freight is being moved over the line on practically normal schedules. Service has never been entirely interrupted. Freight trains left Peoria the morning after the walk-out, and service has been maintained. On the morning of November 23, for example, two eastbound and two westbound freight trains were dispatched from Peoria yard, in addition to five trains operating out on the line. Fourteen road crews are normally in service, as compared with the present total of nine.

New employees are being recruited as rapidly as possible, consistent with the procurement of satisfactory men, and it is expected that normal service will be resumed within a few weeks. New yard forces at Peoria have been completely recruited, and yard operations are on a normal basis, while the road crews are being filled out from day to day.

In the strict sense of the term, no strike exists at the shops. When the seasonal increase in business took place following the fall movement, the usual reductions in shop force took place, beginning about October 31, and at present the shop force is adequate to maintain the power.

While picket lines have been established about the yards and shops by the strikers, there has been little violence, and that has been of a comparatively trivial nature.

* * *



Pittsburgh & Lake Erie Freight Train Near Beaver, Pa.

Traffic

The Erie has filed with the Interstate Commerce Commission an application for fourth section relief in connection with the establishment of through fares on Erie train No. 1 between New York and Chicago in connection with New York, Chicago & St. Louis train No. 5 which exceed the aggregate of intermediate fares.

The Traffic Club of New York at its annual dinner at the Hotel Commodore, on November 25, elected officers as follows: President, C. A. Swope (Louisville & Nashville); vice-president, Philip Croxton (P. Lorillard Company); vice-president, Edgar S. Barney, (Hudson River Day Line); secretary, R. H. Goebel (Rubber Manufacturers' Association), treasurer, Fred B. Fitzgerald, (Moclair Corporation).

The Agricultural Department has authorized the shipment of Florida fruit into southern and western states, under sterilization, until January 31, and this time limit may be put farther into the future if fruit-fly conditions shall warrant. Upwards of 80 carloads of fruit are now being sterilized daily. No fruit known to be infested will be permitted to be shipped, whether sterilized or not.

The Pennsylvania, beginning December 15, will shorten by one hour the time of its daylight passenger train between Chicago and Louisville, Ky., southbound, and forty minutes northbound. The train will leave Chicago at 11:35 a.m., and arrive at Louisville at 7:05 p.m.; leave Louisville 8:30 a.m., arrive Chicago 4 p.m. Beginning January 1, these two trains will be merged with The Flamingo, operated in connection with the Louisville & Nashville for through service between Chicago and the east coast of Florida. This will give, during the 1930 winter season, faster and more convenient service.

Freight Traffic Officers' Meeting

The American Association of Freight Traffic Officers held its twenty-fourth annual meeting at Chicago on November 20 with an attendance of approximately 100 railroad representatives. In the evening the members attended the annual dinner of the National Industrial Traffic League, at which the president of the Association, Charles Barham, vice-president and traffic manager of the Nashville, Chattanooga & St. Louis, was one of the principal speakers.

The officers elected for the ensuing year include the following: President, E. R. Oliver, vice-president of the Southern, Washington; first vice-president, G. H. Ingalls, vice-president of the New York Central, New York; second vice-president, C. S. Fay, vice-president of the Southern Pacific, New Orleans, La.; third vice-president, H. W. Beyers, vice-president of

the Chicago & North Western, Chicago; fourth vice-president, E. A. de Funiak, freight traffic manager of the Louisville & Nashville, Louisville, Ky., and secretary-treasurer (re-elected) J. D. Gowin, assistant general agent of the Missouri Pacific, Chicago.

Pennsylvania Signaling Near Completion

Union continuous cab signals will be in service on the line of the Pennsylvania between New York and Washington by the end of this year. This announcement of the early completion of this important improvement was issued by the railroad company on November 21. At the same time, it was stated that other large items in its signal improvement program, which has amounted to a total of more than \$16,000,000, will probably be finished by January 1. On that date, it is expected that automatic block signals will be in service throughout the company's main lines between New York and Washington on the east and Chicago, St. Louis, Cincinnati, Cleveland and Detroit on the west. Until recently, portions of the lines west of Pittsburgh were operated by the manual block system. The installation of automatic train control (including cab signals) on the western lines will cover the whole distance from Pittsburgh, Pa., to Indianapolis, Ind., 379 miles.

Inland Waterway Survey Proposed

An enlarged program with respect to a survey of the inland waterways of the United States is proposed in the annual report of the Bureau of Foreign and Domestic Commerce to the Department of Commerce, as a "desirable extension of the somewhat circumscribed survey now in progress." "The enlarged program," the report says, "should analyze the merits of the development of inland waterways and canals from the point of view of (a) their economic importance, (b) their justification, based upon cost and other relevant data, and (c) their relationship to other forms of transportation (rail, motor truck and ocean), and could, at the same time, review the motor truck transportation field.

Studies of foreign and domestic inland waterways are now in progress. Field work for the first of the domestic studies has been practically completed, but it is desired to make a thorough research covering all inland-navigation systems of this country, weighing the merits of the development of the waterways from the point of view of their economic importance, justification, cost, etc.

OX-WELDED PIPING.—The Linde Air Products Company, 30 East Forty-second street, New York, has issued a well illustrated, 24-page booklet, containing helpful and instructive information on the installation of oxy-acetylene piping for industrial uses. The booklet is divided into two main sections, the first dealing with the use of ox-welded piping for the transportation of oil, gas, chemicals, water, etc., and the second section, mainly with piping for heating systems. *Apply.*

Foreign Railways

Link in Trans-Australian Line Completed

The Central Australian Railway, extending 300 miles north from Oodnadatta to Alice Springs, in the heart of the continent, and forming part of a proposed through line from Adelaide on the southern coast to Port Darwin on the northern coast, was completed in August. The railway from Darwin has in the meantime been extended southwards 315 miles and thus there remains only a 315-mile gap between Alice Springs and Birdum Creek in the through rail route.

The Oodnadatta-Alice Springs extension carries the north-south line 988 miles northwards from Adelaide. For 753 miles from Quorn, in South Australia, to Alice Springs the line does not cross a single stream. This project is being carried out in compliance with the agreement which the Commonwealth of Australia entered in 1911 when it took over the Northern Territory from South Australia.

Southern Electrification

The Southern Railway of Great Britain has announced plans for the electrification of nearly 70 miles of line within the next two or three years. This improvement will be financed by the capitalized savings resulting from the remission of passenger excise duties, described in the *Railway Age* of October 26.

The mileage to be electrified under the new project includes the main line from London to Brighton (51 miles), of which 14 miles from London to Purley are already electrically operated, from Preston Park on the main line to Hove and Worthing (11 miles), and from Redhill on the main line to Reigate, Dorking Town and Guildford (20 miles). Trains will be run on the direct current third-rail system, now the standard for the entire electrified area of the Southern Railway. The proposed improvement which will cost about £2,000,000, will give the Southern the longest electrified section in Great Britain.

Electrification in India

With the opening for electric operation on November 5 of 86 miles of main line from Kalyan Junction to Poona, the Great Indian Peninsula Railway completed the second step in its comprehensive electrification program. Planned originally to speed up operation in suburban territory and through mountainous districts, the entire project, which involves nearly 200 route miles, will give the G. I. P. one of the important electrified lines of the world.

Electrified service on suburban lines in the vicinity of Bombay was begun in February, 1925, and shortly afterward was extended to Kalyan, a distance of 45 miles. The section opened early this month further extends the service 86 miles south to Poona, on the main line

from Bombay to Madras and southern India, and includes a section over the western slope of the Ghat mountains, where there is an average grade of over 2 per cent for 15 miles. Work will be begun shortly on the third phase of the program—the electrification of the Bombay-Delhi-Calcutta line from Kalyan northeast 52 miles to Igatpuri.

The motive power to be used on the Bombay-Poona section consists of 22 passenger locomotives developing 2,160 hp., weighing 100 tons each and capable of a service speed of 70 miles per hour, and 41 freight locomotives weighing 120 tons, developing 2,600 hp. and capable of hauling 1,000-ton trains over the steepest grades. The latter will also be used as helpers in express passenger service, to make possible a three-hour schedule for the run between Bombay and Poona. Both types of locomotives work on direct current at 1,500 volts, transmitted from a generating station at Kalyan at 100,000 volts and stepped down at substations located along the line at 12-mile intervals. As the standard gage in India is 5 ft. 6 in., the new rolling stock required for use on the electrified lines is among the largest in the world. Each coach is 68 ft. long and 12 ft. wide, with seats for 125 passengers.

British Railways' Statement on Freight Car Size

The capacity of freight cars in use on railways of Great Britain has in recent months provoked considerable discussion in the press of that country. Because of the great number of small-capacity cars in use there the roads have been called unprogressive in their failure to adopt more rapidly the larger freight cars used in other countries. The question is discussed in a recent issue of *Railway Newsletter*, the official publicity pamphlet of the British Railways Press Bureau.

This statement holds that in recent years the railways have been giving close consideration to the question of adopting cars of larger carrying capacity (especially for coal traffic) than those in general use. At one time, it continues, coal was hauled in five- or eight-ton cars but today the coal cars in general use are of eight-, ten- or twelve-ton capacity. The statement, often made, that there are 57 types of freight cars still in use throughout Great Britain is answered by pointing out the recent advance toward standardization in recent years when only two types of cars—the 12-ton and 20-ton—have been built. Expert opinion tends to the view that the 20-ton car is the right type to be brought into general use.

"At present, however," it is next pointed out, "difficulties stand in the way of the general adoption of the 20-ton car. A considerable proportion of the collieries are not equipped to take them; their screens, scales and sidings would require adaptation Certain ports also are not yet equipped for the purpose The expenditure that would be incurred

in this respect would be considerable in total although the annual charge involved would not be large in proportion to the tonnage handled

"A very large capital expenditure would be involved in the sudden replacement of all existing cars. During the period of the European War (1914-1918) the private building of cars was almost stopped and while, since the war, some of the arrears have been made good, it is probable that 80 per cent of the privately owned cars now in use are 20 years old or over. Since the average life of a freight car is usually considered to be rather more than 30 years, almost all these could be replaced within the next 6 to 10 years.

"Under existing conditions where so many of the thousands of privately owned cars (approximately 500,000) engaged in the coal trade are of the smaller carrying capacity type a little reflection will reveal the serious difficulties with which the railway companies have to contend.

"The way to economic working lies in the elimination of wasteful methods, one of which, practically speaking, is the haulage of dead weight entirely out of proportion to the paying load, and if the tare of the 12-ton vehicle cannot be reduced without jeopardizing conditions of safety and affecting the standard specification prescribed by the railways, the obvious policy would be the gradual substitution of 20-ton cars for those of lower capacity. It has been the generally accepted view that the coal owner or consumer obtains an advantage from the increased capacity of his sidings and from the general modernizing of methods of carriage."

Higher Rates for Poland

According to reports from the Department of Commerce, increased freight rates on a few major commodities were put into effect on the Polish railways on October 1. Based on shipments of 100 kilograms (220.46 lbs.) moving in 15-ton cars for distances of 300 kilometers (186.3 miles), the increases over the old rates are as follows: Coal, 12 per cent; cement, 20 per cent; rye, 24 per cent; sugar, 40 per cent; rice, 104 per cent, and lard and bacon, 30 per cent. Rates on flour were lowered 2 per cent. The various "cartelized" industries, lead by the steel and petroleum syndicates, asked government permission to raise prices sufficiently to meet the increased freight charges. Except in the case of the Sugar Union, however, these requests were refused on the ground that even after the October increases, Polish rates are still below the general European level.

Diesel Rail Car Tried in Sweden

The Swedish Railroad Company is experimenting with a rail motor car powered with a Diesel engine, according to recent reports made public by the United States Department of Commerce. The motor develops 150 horsepower and attains a speed of 65 kilometers per hour. The report further states that the operating costs are low and if the experiment proves otherwise successful it is expected to result in the installation of several of these cars on Swedish railways.

Equipment and Supplies

Locomotives

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered 40 locomotives of the 4-8-4 type from the American Locomotive Company.

NEW YORK, NEW HAVEN & HARTFORD.—An appropriation of \$3,500,000 for improvements, including the purchase of 10 electric locomotives and 33 multiple-unit passenger cars and trailers, was announced by the New York, New Haven & Hartford on November 25. The locomotives are to be used on the electric division of the road between New York and New Haven, while the passenger cars are to be used in the suburban service in the New York zone.

THE SOUTHERN PACIFIC will appropriate \$8,300,000 for the purchase of new equipment for 1930 requirements as follows: For 35 steam locomotives, two electric locomotives, 47 units of passenger train equipment to include dining, lounge and baggage cars; 400 units of freight train equipment and eight units of work equipment such as cranes, ditchers and steam shovels. In addition 60 caboose cars and 20 locomotive tenders will be constructed at the company's shops. An order will shortly be placed for 120,785 tons of rail for 1930 delivery to cost \$5,000,000.

Freight Cars

THE READING is inquiring for from 1,000 to 2,000 box cars of 50 tons capacity.

THE MISSOURI PACIFIC budget for 1930 includes 600 coal cars and 25 caboose cars.

THE ATCHISON, TOPEKA & SANTA FE has ordered 100 tank cars from the General American Tank Car Corporation. Inquiry for this equipment was reported in the *Railway Age* of September 21.

THE SHELL OIL COMPANY has ordered 10 tank cars of 6,500 gal. capacity; 20 tank cars of 8,000 gal. capacity, and 70 tank cars of 10,000 gal. capacity from the General American Tank Car Corporation.

THE ST. LOUIS-SAN FRANCISCO has ordered 3,800 freight cars, the awards being as follows:

Number	Type	Builder
1,000	Box	Pullman Car & Mfg. Co.
1,500	Box	American Car & Foundry Co.
300	Automobile	General American Car Co.
700	Coal	Pullman Car & Mfg. Co.
300	Coal	Company Shops
300	Underframes	Virginia Bridge & Iron Co.

Inquiry for this equipment was reported in the *Railway Age* of October 19 and November 16.

Iron and Steel

THE LEHIGH & NEW ENGLAND has ordered 1,500 tons of 130 lb. rail from the Bethlehem Steel Company.

THE BOSTON & MAINE has ordered 10,000 tons of rail for December delivery from the Bethlehem Steel Company.

THE LEHIGH VALLEY has ordered 465 tons of steel from the Bethlehem Steel Company for two bridges at Amherst, N. Y.

THE ST. LOUIS-SAN FRANCISCO has ordered 30,000 tons of rails from the Tennessee Coal, Iron & Railroad Company.

Signaling

THE JAPANESE GOVERNMENT has ordered from the Union Switch & Signal Company material for an electro-pneumatic interlocking to be installed at Shinjuku; 23 levers, Model 14.

THE CANADIAN NATIONAL has ordered from the General Railway Signal Company material for automatic block signaling between North Edmonton, Alberta, and Clover Bar, 4½ miles.

THE NEW YORK CENTRAL has ordered from the General Railway Signal Company, to be installed at Poughkeepsie, N. Y., a 16-lever table interlocker for remote control of switches and signals, and also material for extensive additions to the interlocking of Signal Station 58.

THE LOUISVILLE & NASHVILLE has contracted with the General Railway Signal Company for the installation of automatic block signals on its line from East St. Louis, Ill., eastward to Maunie, 131 miles. With the completion of this work, the road will be equipped with automatic block signals through from St. Louis, Mo., to Cincinnati, Ohio, by way of the Henderson route.

Dispatcher Control in Maine

The Boston & Maine has contracted with the Union Switch & Signal Company for the installation of a dispatcher-controlled signaling system on its line, mostly double track, from Rigby, near Portland, Me., westward to Dover, N. H., 44 miles. The control for the whole line will be at AF Tower, McIntyre's Cut, near Biddeford, which is 13 miles from Rigby. The existing interlockings at Rigby, Biddeford and Dover will be modified to work in connection with the new system. Signals will be provided for moving trains in either direction on either track. The installation will require 25 electric switch and lock movements, dual control; 215 searchlight signals, 900 direct current relays and 160 rectifiers.

The operator at Biddeford will also control train movements on the Eastern route, a single-track line from Rigby, westward to North Berwick, 33 miles. This line runs parallel to the main line and at Biddeford the two lines are close together.

Supply Trade

Charles P. Clampitt has been appointed manager of the Chicago office of the **Alexander Milburn Company**.

A merger has been effected by the **Oster Manufacturing Company**, Cleveland, Ohio, and the **Williams Tool Corporation**, Erie, Pa. This merger brings under one operating head the manufacture and marketing of a complete line of die stocks and power pipe threading machines.

The **Geo. D. Whitcomb Company**, Rochelle, Ill., has completed a new factory addition to be used primarily for the manufacture of large oil-electric and large gear drive locomotives. These improvements will provide facilities for its increased business. Another addition to the office, as well as a plant extension during the early part of the coming year is contemplated.

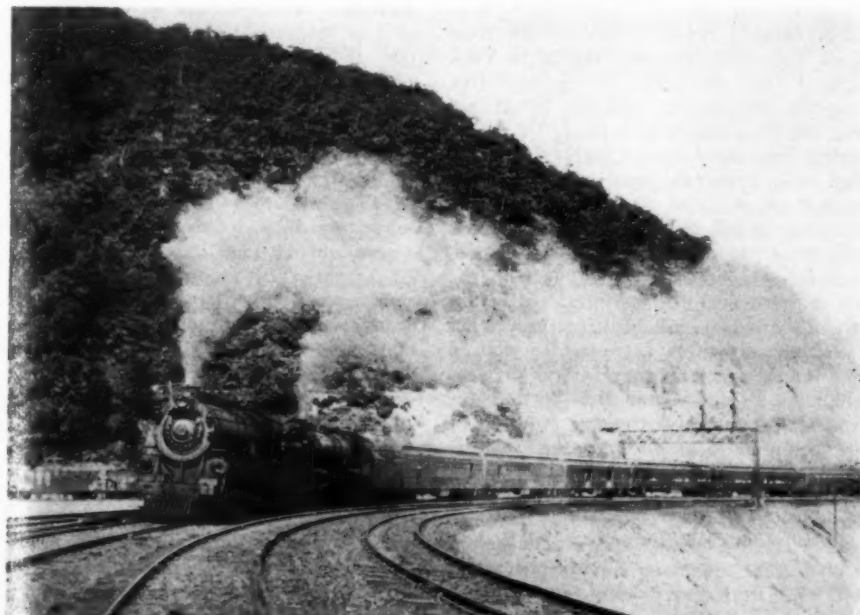
Under the name of **Wadleigh & Bailey**, with offices at 1 Broadway, New York and Southern building, Washington, D. C., **Francis R. Wadleigh**, consulting mining and fuel engineer of New York, and **Ernest L. Bailey**, mining engineer, formerly general superintendent of the coal mining subsidiaries of Allied & Dye Corporation, have become associated to conduct a consulting and engineering service to the coal mining and fuel consuming industries and interested financial investors.

The **Headley Emulsified Products Company**, Philadelphia, Pa., has become the successor to the **Headley Good Roads Company**. The officers of the new corporation are: President, **Edgar S. Ross**, director of research and development of the old company, and

formerly in charge of investigations on roofings and waterproofings at the Mellon Institute of Industrial Research; vice-president, **Parmely W. Herrick**, of the Herrick Company, Cleveland, Ohio; vice-president and treasurer, **M. W. Lefever**, for 15 years in a similar position with the Headley Good Roads Company; and secretary, **Geo. D. Webster**, of Cleveland. The present plant at Marcus Hook, Pa. will be supplemented by other manufacturing facilities to be located at points not yet determined. Branch offices in charge of resident engineers will be opened in a number of cities, and distributors with warehouse stocks are to be appointed in the leading industrial centers.

Crawford McGinnis, representing the **Pyle-National Company**, Chicago, has opened a new office for that company in the Transportation building, Washington, D. C. Mr. McGinnis was born in September 24, 1880, in Oakland City, Ind., and was educated in the grammar schools of that city. He entered railroad service in 1897 as a machinist's apprentice on the St. Louis-San Francisco. In 1900 he completed his apprenticeship with the Inter-oceanic Railroad in Mexico and then held the position of locomotive air-brake inspector until 1902, when he entered the service of the Tehuantepec Railroad, Mexico, as mechanical engineer. During 1903 and 1904, Mr. McGinnis traveled extensively through Central and South America. In 1905, he returned to the United States and for two years had charge of multiple-unit car and air brake development work for the Westinghouse Air Brake Company and the Westinghouse Electric Machine Company. In 1907 he entered the service of the Minneapolis, St. Paul & Sault Ste. Marie as general air brake inspector. In 1911 he joined the Pyle-National Company and since that time has served this company continuously in various capacities including practically all departments.

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The Pennsylvania's "Manhattan Limited," Westbound on Horseshoe Curve

Construction

ABILENE & EASTERN.—This company, recently organized in Texas, has applied to the Interstate Commerce Commission for a certificate for the construction of a line from Abilene to Cross Plains, Tex., 45 miles. Frank Kell, Wichita Falls, Tex., is president.

CHESAPEAKE & OHIO.—The Interstate Commerce Commission has authorized this company to construct an extension to its Gauley and Rich Creek subdivisions from Marshall, W. Va., south and west, 5.4 miles; estimated cost, approximately \$400,000.

CHESAPEAKE & OHIO.—The Interstate Commerce Commission has authorized the Levisa River, a subsidiary of this company, to construct a line from a connection with the Chesapeake & Ohio at Millard, Ky., eastward to the Kentucky-Virginia state line, approximately 28 miles; estimated cost, approximately \$4,804,000.

CHESAPEAKE & OHIO.—This company has authorized the construction of additions and improvements to interlocking plants between Low Moor and B. S. Cabin, W. Va., at an estimated cost of \$39,670 and the replacement of two-position automatic semaphore signals with three-position automatic color light signals from Old Point Junction to Oriana, Va., at a probable cost of \$29,675.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—A contract has been let to the Roberts & Schaefer Company, Chicago, for the construction of an electric cinder handling plant at the Louisville & Jeffersonville Bridge & Railroad terminal, Louisville, Ky.

DELAWARE & HUDSON.—The Public Service Commission of New York has approved plans calling for the installation of automatic signals at the Depot crossing of this company's tracks at Middle Granville, N. Y.

DELAWARE, LACKAWANNA & WESTERN.—The Public Service Commission of New York has ordered the elimination of the Bath-Avoca highway crossing of this company's tracks, two miles west of Kanona, N. Y. The highway is to be carried over the grade of the railroad about 150 ft. from the present crossing. The estimated cost, exclusive of land and damages, is \$133,204. The Commission has also approved the installation of automatic signals at the Eleventh street crossing, Elmira Heights, N. Y.

ERIE.—The New York Public Service Commission has approved plans submitted by this company for the installation of automatic signals at grade crossings at Hayes avenue, Endicott, N. Y., Leonard street, Hancock, N. Y., and Queen Ann street, Friendship, N. Y.

GALVESTON WHARF COMPANY.—A contract has been let to the Jones-Hettel-

sater Construction Company, Kansas City, Mo., for the construction of a reinforced concrete grain elevator of 6,000,000-bu. capacity at Galveston, Tex. This contract also includes the construction of a steel shed, receiving elevator legs and power grain shovels. The total cost of the completed elevator is estimated at \$2,000,000. It was reported in the *Railway Age* of November 16 that bids for this work were being received.

GRAND TRUNK WESTERN.—The Interstate Commerce Commission has authorized this company to operate by trackage rights into Muskegon, Mich., where the company announced its intention of spending \$750,000 in the event that its application were authorized.

GULF & WEST TEXAS.—Examiner J. S. Pritchard of the Interstate Commerce Commission has submitted a proposed report recommending that the commission grant this company's application for a certificate for the construction of a line from Fredericksburg to Brady, Tex., 69 miles, but that the application in so far as it applies to that portion of the proposed line from Eden to San Angelo, Tex., 44 miles, be deferred for further consideration.

LEHIGH VALLEY.—This company has been directed by the Public Service Commission of New York to eliminate the Ellicott street crossing in Batavia, N. Y., by carrying the street under the grade of the railroad on the existing line. The cost, exclusive of land and damages, is estimated at \$125,000.

MISSOURI & NORTH ARKANSAS.—This company plans the construction with its own forces of an enginehouse at Kensett, Ark., which will have outside dimensions of 70 ft. by 100 ft. and will involve a total expenditure of about \$75,000.

NEW YORK CENTRAL.—The Public Service Commission of New York has notified this company that it does not consider as excessive the low bid of \$108,184 submitted by the Bates & Rogers Construction Company of New York City, for the elimination of the Nyack turnpike crossing of the railroad in Clarkstown, N. Y., and has further directed the railroad to award the necessary contract and begin work. The Commission has also approved plans for the installation of automatic signals at grade crossings on this company's lines at Wheeler street, Tonawanda, N. Y., and Plank road, Batavia, N. Y. The railroad has asked the Commission to approve the construction at grade of a switch track across West Shore avenue, Buffalo, N. Y., about 200 ft. south of Bailey avenue, to provide shipping facilities for concerns in that vicinity.

NEW YORK, NEW HAVEN & HARTFORD.—The Public Service Commission of New York has directed this company to award to L. E. McLoughlin, New London, Conn., the contract for the reconstruction of the Delafield street bridge over its tracks in Poughkeepsie, N. Y. McLoughlin's bid, the lowest of six submitted, was \$37,475.

It was announced in the *Railway Age* of October 26 that plans for this work had been approved by the Commission.

PORT OF NEW YORK AUTHORITY.—The Port of New York Authority has made a formal offer to the Borough of Brooklyn to undertake the financing and construction of a connection from the Long Island Railroad to Jamaica Bay. The project, which has been a subject of discussion for several years between the municipality, civic bodies and railroad officers, lies in what is known as "Belt Line 7" territory of the Port Authority's port development plan. It is proposed to build a double track line from a point near Ralph avenue on the Bay Ridge division of the Long Island to the head of Paerdegat Basin, where it would divide into two double track lines running on either side of the basin, one toward Canarsie Pier and the other to Mill Basin Channel. If the plan of the Port Authority is accepted, the city would lease the completed line for an annual amount sufficient to pay interest and amortization charges, and would in turn lease the line to the Long Island Railroad for operation.

RUTLAND.—The Department of Public Works of New York state has been directed to award to Lord & Humphrey, Malone, N. Y., the contract for the reconstruction of the bridge carrying the Masons Corners-Canadian Line highway over this company's tracks in Champlain, N. Y. The cost is \$34,456.

SEABOARD AIR LINE.—The Interstate Commerce Commission has authorized the Seaboard All-Florida, a subsidiary of the S. A. L., to construct an extension of 0.4 miles of line, and to the city of Miami, Fla., to construct an extension of 0.6 miles of line, the Seaboard to operate over both the proposed extensions; estimated total cost, \$124,066.

Reverse Signaling to Increase Capacity of Grand Central

Following careful studies of its New York Terminal situation, the New York Central has prepared a comprehensive program designed to increase by 25 per cent the train-handling capacity of tracks leading into the Grand Central Terminal. The most important item of the general project is the plan to provide reverse signaling of all four main tracks leading into the terminal. Track No. 4, inbound, is already reverse signaled, but with the new improvements in effect all four tracks will be available for movement in either direction between the station and 162nd street on the Harlem division and High Bridge on the Hudson division. Among the extensive changes required by the complete program are the replacement of semaphore signals now in service by signals of the color light type; the erection of 10 new signal bridges to replace existing signal bridges between the portal of the tunnel at Ninety-Sixth street and the drawbridge over the Harlem river; the reconstruction of the interlocking tower at 106th street; complete re-

construction of the track layout at the entrance to Mott Haven yard; the construction of a new signal tower at that point to replace the four towers now in operation in that vicinity, and the reconstruction of the highway bridge over 144th street to span nine tracks in place of the five tracks now in service there. The new tower at Mott Haven will be the controlling point of the North end of the reverse signaling while the tower at Fifty-Sixth street will be the controlling point at the South end. These towers will be connected with each other and with the 106th street tower by loud-speaking telephones. Under the new arrangement, signals will be so spaced as to permit the movement of trains at a speed of 35 miles an hour, with a headway of 1½ minutes. The resulting greater freedom in the use of main line tracks will make possible more intensive use of the 48 terminal tracks, as demanded by recent increases in suburban traffic. The proposed improvements, part of an extensive program, will supplement the lengthening to a maximum of 800 ft. of suburban station platforms on the Hudson-Electric and Harlem-Electric divisions which the New York Central began a year ago to permit operation of longer trains in suburban service.

S. P. Will Spend \$40,000,000 on Construction in 1930

According to recent announcements, the Southern Pacific plans an expenditure of over \$40,000,000 during 1930 upon the completion of construction projects now under way and on new construction. Among the important projects begun during 1929 to be finished during the coming year are the Suisun Bay bridge and approaches to it, now about 20 per cent complete, which will be open for traffic in the late fall of 1930; the installation, at a cost of \$725,000, of 43 miles of signal dispatching; the completion of the first unit of a new 7,500-car yard at Oakland, Cal., at a cost of \$500,000; improvements to yard facilities at Los Angeles, Cal., at a cost of \$950,000; the completion of a new station and of 5.6 miles of double track line in the city of San Jose, Cal., at an approximate cost of \$2,200,000, and the completion of an installation of 776 miles of new automatic signals which will fully equip all of the company's main lines with automatic signals. New construction to be begun during 1930 includes the building of 75 miles of second track at various points on the Overland, Coast and Sunset routes, at an approximate cost of \$5,000,000; the rehabilitation of the 29-mile San Ramon branch line between Avon, Cal., and Radum, for use as a main line for north and south bound freight traffic routed over the Suisun Bay bridge; additional engine houses, yard and terminal facilities and improved water storage facilities at important terminals, and 46 miles of a new signal dispatching system. About \$15,000,000 in addition is to be spent on construction of new sidings, laying of heavier rail, tie renewals, ballasting and similar track improvements.

Railway Finance

BALTIMORE & OHIO.—Western Maryland Acquisition.—Oral arguments were heard by the Interstate Commerce Commission on November 23 on the commission's complaint against the B. & O. for alleged violation of the Clayton law in its acquisition of stock of the Western Maryland. Thomas P. Healey, director of the commission's Bureau of Inquiry, argued that the acquisition of 43 per cent of the stock, which he said constituted 70 per cent of the voting control, was in violation of the act, and a similar position was taken by W. S. Bronson, appearing as counsel for the Pittsburgh & West Virginia. Chairman Lewis and other commissioners sought to bring out the facts as to the reported acquisition of stock of the P. & W. V. by the Pennroad Corporation. Mr. Bronson referred the inquiries to C. F. Taplin, general counsel of the P. & W. V., who said that there had been no change in the management but that he was counsel for the company and could not speak for private interests, and apparently the question as to whether there had been a change in control of the stock was not specifically answered. R. Marsden Smith and Luther M. Walter, of counsel for the Baltimore & Ohio, urged that the holdings of Western Maryland stock represented a legitimate investment and did not constitute an illegal control.

CHESAPEAKE & OHIO.—Acquisition.—This company has applied to the commission for authority to acquire and operate properties of the Hocking Valley and the Chesapeake & Hocking which it now controls. It proposes to exchange 247,488 $\frac{3}{4}$ shares of C. & O. common stock for the properties of the Hocking Valley, which it will distribute to its holders at the rate of two and one fourth shares for each share of Hocking Valley common.

CINCINNATI, NEW ORLEANS & TEXAS PACIFIC.—New Directors Elected.—George D. Crabbs of Cincinnati, Ohio, and C. W. Van Horn, general manager of the Baltimore & Ohio at Cincinnati, have been elected members of the board of directors to succeed Charles A. Hinsch and H. B. Voorhees, respectively.

DENVER & RIO GRANDE WESTERN.—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon the branch line extending from Engleville Jct., Colo., southward to Engleville, 6.4 miles.

GRAND TRUNK WESTERN.—Car Ferry Service.—The Interstate Commerce Commission has authorized this company to operate a car ferry service across Lake Michigan between Muskegon, Mich., and Milwaukee, Wis., and to operate under trackage rights over the Pennsylvania's Muskegon branch from Kinney, Mich., to Muskegon Heights, 26.5 miles, thence for $\frac{1}{4}$ mile over the Toledo, Saginaw & Muskegon to Simpson and thence over the same road to the Muskegon terminus,

2.6 miles. The purpose of the change is stated to be a reduction in loss and detention to Grand Trunk Western car ferries at Grand Haven, which will be retained, however, as an auxiliary car ferry terminal. More direct service from Muskegon east is also given as an objective.

KANSAS & SIDELL.—Lease.—The Interstate Commerce Commission has authorized the acquisition by the Kansas & Sidell of control of the Yale Short Line under lease (extending from Casey, to Yale, Ill., about 13 miles).

LOUISIANA RAILWAY & NAVIGATION COMPANY.—Abandonment.—This company and the Louisiana & Arkansas have applied to the Interstate Commerce Commission for authority to abandon a branch line from Aloha to Winnfield, La., 25.38 miles, which has been operated at a loss for several years.

MISSOURI-KANSAS-TEXAS.—Control of Beaver, Meade & Englewood.—The Interstate Commerce Commission has authorized this company to acquire control of the Beaver, Meade & Englewood by the purchase of its securities and application for authority to control the same property by the Chicago, Rock Island & Pacific has been denied. The line to be acquired extends from Beaver, Okla., to Hough, 65 miles.

NEW YORK CENTRAL.—Valuation.—The Interstate Commerce Commission has issued its final valuation report on the principal properties in the New York Central system, finding a final value for rate-making purposes of \$1,578,206,614, as of dates ranging from 1915 to 1919.

NEW YORK, NEW HAVEN & HARTFORD.—Dividend Increase.—The directors of this company on November 26 increased the annual dividend rate on common stock of this company from \$5 to \$6. This was the second increase in the dividend rate on this stock made this year, one from \$4 to \$5 having been authorized on August 27.

NORFOLK & WESTERN.—Acquisition of Big Sandy & Cumberland.—The Interstate Commerce Commission has authorized this company to lease the Big Sandy & Cumberland, which extends from a connection with the Knox Creek Railway at the Kentucky-Virginia state line, southward to Grundy, Va., approximately 25.4 miles. Leasing of the Knox Creek, a 7.7-mile line extending from a connection with the Norfolk & Western near Devon, W. Va., southward to the Kentucky-Virginia state line, is authorized.

PITTSBURGH & WEST VIRGINIA.—Proposal for Western Maryland Stock.—This company has filed with the Interstate Commerce Commission an amended application for authority to acquire control of the Western Maryland, offering to pur-

chase the stock held by the Baltimore & Ohio for \$18,673,049 plus interest from the date of its acquisition by the B. & O. and less dividends. It also offers to purchase other stock to make up a numerical majority at prices to be fixed by the commission.

ST. LOUIS-SAN FRANCISCO.—Control of Miami Mineral Belt.—The Interstate Commerce Commission has authorized this company to lease the properties of the Miami Mineral Belt, which extends from a connection with the Frisco at Quapaw, Okla., to Baxter Jct., Kan., 11 miles.

SEABOARD AIR LINE.—Stock.—This company, as a final step in its readjustment plan, is offering 1,892,630 new no-par common shares at \$12 a share to its present stockholders on a ratio of two new shares for each share held. Adjustment bondholders who have deposited such securities also have the right to purchase two of these shares for each share which they will receive under the readjustment plan, i.e., 15 shares for each \$1,000 adjustment bond deposited.

Dividends Declared

Atlantic Coast Line.—Common, 3 $\frac{1}{2}$ per cent; Extra, 1 $\frac{1}{2}$ per cent, both payable January 10 to holders of record December 12.

Boston & Albany.—2 $\frac{1}{4}$ per cent, quarterly, payable December 31 to holders of record November 30.

Consolidated Railroads of Cuba.—Preferred, 1 $\frac{1}{2}$ per cent, quarterly, payable January 2 to holders of record December 10.

Cuba Northern Railways.—Common, \$4.40, payable December 27 to holders of record December 27.

Illinois Central, leased lines.—2 per cent, payable January 2 to holders of record December 11.

Kansas, Oklahoma & Gulf.—Preferred A, 6 per cent, payable December 2 to holders of record November 25.

Midland Valley.—Extra, \$1.00, payable December 30 to holders of record December 14.

New York, New Haven & Hartford. Common, \$1.50, quarterly; Preferred, \$1.75, quarterly, both payable January 2 to holders of record December 6.

Richmond, Fredericksburg & Potomac.—Common, \$4.00, semi-annually; Extra, \$4.00, both payable December 31 to holders of record December 23.

Average Prices of Stocks and of Bonds

	Nov. 26	Last week	Last year
Average price of 20 representative railway stocks.	128.50	125.15	130.91
Average price of 20 representative railway bonds.	92.32	91.11	94.15

DRAFT GEAR SPECIFICATIONS.—The Waugh Equipment Company, Depew, N. Y., has reprinted in a booklet entitled "O. K." the Tentative Specifications for Draft Gears for Freight Cars as set up by the Committee on Couplers and Draft Gears, American Railway Association, and has extracted below each specification the draft gear characteristics it sets forth. Following this reprint is a comparative chart, in one column of which is listed the page, chart or figure numbers in the report of the committee which show just how the Waugh-Gould draft gear measures up to the committee's specifications. Several blank columns are also provided on the chart for use in recording similar data for other types of draft gears, which one may wish to compare with the specifications.

Railway Officers

Executive

J. A. Droege, general manager of the New York, New Haven & Hartford, has in addition been appointed vice-president with headquarters as before at New Haven, Conn. **Howard S. Palmer**, comptroller, with headquarters at New Haven, has been appointed vice-president in charge of accounts, with the same headquarters.

Lawrence A. Downs, president of the Illinois Central, with headquarters at Chicago, has also been elected chairman of the board of directors of the Central of Georgia and the Ocean Steamship Company of Savannah, succeeding **Charles Y. Markham**, who remains a director of the two companies and chairman of the board of the Illinois Central.

James F. Holden, vice-president in charge of traffic of the Kansas City Southern, with headquarters at Kansas City, Mo., will retire from active duty on January 1, after more than 52 years of railway service, the last 19 of which have been with the Kansas City Southern. Mr. Holden was born at Prince Albert, Ont., on December 22, 1861, and entered railway service at the age of 16 years as a clerk to the superintendent of the Whitby, Port Perry & Lindsay (now part of the Canadian National). Later he was transferred to the office of the traveling auditor and from 1880 to 1891 he served successively as chief clerk in the office of the traffic manager of the Midland of Canada (now part of the



James F. Holden

Canadian National), local freight agent of that road at Toronto, Ont., traveling freight agent for the Canadian Pacific at the same point, clerk in the accounting department of the St. Louis & San Francisco and chief rate clerk in the general freight office of the same company. In November, 1891,

Mr. Holden was appointed auditor and traffic manager of the Choctaw, Oklahoma & Gulf (now part of the Chicago, Rock Island & Pacific), a position he held until July, 1901, when he was elected vice-president of the road.

He was appointed freight traffic manager of the Rock Island in February, 1903, when that road purchased the Choctaw, Oklahoma & Gulf and in January, 1906, he returned to Oklahoma as vice-president and general manager of the Midland Valley. Mr. Holden entered the service of the Kansas City Southern as its vice-president in charge of traffic in February, 1910.

Arthur B. Nichols, who has been appointed vice-president of the Boston & Maine, with headquarters at Boston, Mass., has been with the Boston & Maine for approximately 35 years. Previous to his appointment as vice-president, he had served as clerk of the corporation and clerk of the board of directors, which duties he will continue, in addition to acting as vice-president with such duties and powers as may be assigned to him by the board of directors,



Arthur B. Nichols

the executive committee and the president. Mr. Nichols entered the service of the B. & M. as office boy and messenger, later serving as relief operator. In November, 1895, he became stenographer to the president. He was elected clerk of the corporation and of the board of directors in March, 1912, and appointed assistant to the president, continuing in that capacity until 1916, when the road went into the hands of the receivers and he became assistant to the temporary receiver. In June, 1918, he was appointed treasurer of the company in addition to his other duties, serving in that capacity until the end of federal control of the railways in 1920, at which time he continued as clerk of the corporation and clerk of the board of directors, the position he held at the time of his recent appointment as vice-president.

Operating

T. E. Corbett has been appointed trainmaster of the West Trans-Missouri division of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Miles City, Mont., succeeding **A. F. Manley**, who has been transferred to the East Trans-Missouri division, with headquarters at Mobridge, S. D.

J. S. Bassett, division engineer of the Missouri Pacific at Little Rock, Ark., has been appointed assistant superintendent of the Arkansas division at the same point, succeeding **W. Wicker**, who has been placed in charge of the Little Rock terminal with the same title. The position of trainmaster of the terminal, formerly held by **J. L. Umshler**, has been abolished.

G. N. Slade, trainmaster of the St. Paul division of the Northern Pacific, with headquarters at Minneapolis, Minn., has been promoted to superintendent of ore operations, with headquarters at Duluth, succeeding **D. M. Driscoll**, who has been transferred to the Yellowstone division, with headquarters at Glendive, Mont. Mr. Driscoll replaces **R. T. Taylor**, who has been transferred to the Dakota division, with headquarters at Jamestown, N. D., to succeed **D. S. Colby**, who has been transferred to the Idaho division, with headquarters at Spokane, Wash. Mr. Colby replaces **James Shannon**, who will retire from active duty on December 1 under the pension rules of the company, after 40 years of continuous service with the Northern Pacific.

Traffic

R. C. McLemore, freight traffic agent of the Atlanta, Birmingham & Coast, has been appointed commercial agent, with headquarters as before at Atlanta, Ga.

Frank C. Keen, Jr., commercial agent of the Atlanta, Birmingham & Coast, with headquarters at Miami, Fla., has been appointed general agent, with headquarters at Jacksonville, Fla., succeeding **C. I. Allen**, deceased.

Charles T. Collett, who has been promoted to assistant freight traffic manager of the Southern Pacific, with headquarters at Chicago, has been connected with that railroad for 15 years. He was born at Pine Bluff, Ark., on August 8, 1888, and entered railway service in 1907 as a claim clerk on the St. Louis-San Francisco at St. Louis, Mo. Later he was advanced successively to rate clerk at that point, rate clerk to the assistant general freight agent at Oklahoma City, Okla., and chief clerk to the same traffic officer. Mr. Collett entered Southern Pacific service in October, 1912, as commercial agent at Oklahoma City, where he remained until 1916 when he was advanced to general agent at Kansas City, Mo. During federal control of the rail-

roads, when a number of traffic agencies were abandoned, he was sales manager of the Campbell Paint & Varnish Co., at St. Louis, returning to the Southern Pacific on January 1, 1920, as general agent at that point. He was transferred



C. T. Collett

to Chicago on August 1, 1923, and was promoted to assistant to the traffic manager at Chicago on July 1, 1926. Mr. Collett's further promotion to assistant freight traffic manager at Chicago became effective on November 1.

Engineering, Maintenance of Way and Signaling

C. F. Grundy, who has been appointed signal engineer of the Kansas City Southern, with headquarters at Kansas City, Mo., has been connected with railways for 11 years. He was



C. F. Grundy

born at King City, Mo., on September 16, 1894, and after graduating from the high school in that city, completed a special course at the University of Missouri in 1914-1915. While attending high school, during vacations and after graduation, Mr. Grundy was employed in telephone and electrical work, and before entering railway service he was engaged for a year and a

half with the Bell Telephone Company. In November, 1918, he became an assistant signalman on the Kansas City Terminal, then advancing through various positions, including that of maintainer and signal draftsman. He entered the service of the Kansas City Southern on May 29, 1926, as a signal draftsman, a position he held until his promotion to signal engineer.

W. F. Rech, bridge engineer of the Chicago & Alton, with headquarters at Chicago, has resigned to engage in other business.

The territory of **H. D. Knecht**, division engineer of the Missouri Pacific, with headquarters at Little Rock, Ark., has been extended to include the entire Arkansas division.

Mechanical

C. W. Esch, chief draftsman in mechanical department of the Chicago & Alton, has been appointed mechanical engineer with headquarters at Bloomington, Ill., succeeding **G. C. Seidel**, resigned.

Gustavo Alvarado has been appointed master mechanic of the National of Mexico, with headquarters at Cardenas, S.L.P. **Santos Fierro** has been appointed master mechanic, with headquarters at Monclova, Coah. **Augustin C. Ruiz** has been assigned to the position of traveling inspector for the mechanical department, with headquarters at Mexico, D.F.

Charles Emerson, acting master mechanic of the Tacoma division of the Northern Pacific, with headquarters at Tacoma, Wash., has been promoted to master mechanic of the division. Mr. Emerson succeeds **James Bruce**, who retired on November 15 after more than 46 years of continuous service with the Northern Pacific.

G. C. Christy, who has been appointed superintendent of the car de-



George C. Christy

partment of the Illinois Central, with headquarters at Chicago, has been connected with that road for more than

31 years. He was born at Water Valley, Miss., in 1884 and entered railroad service as a painter apprentice on the Illinois Central at that point in 1898. Two years later he was transferred to the mechanical department and upon the completion of his apprenticeship in March, 1904, he served until 1911 as a machinist and a foreman. In October of the latter year he was advanced to general foreman at Water Valley, then being transferred to McComb, Miss., in December, 1914. Mr. Christy was promoted to master mechanic of the Greenville and New Orleans divisions at Vicksburg, Miss., in July, 1917, and in 1926 his jurisdiction was extended to include the Vicksburg Route division. His promotion to superintendent of the car department of the Illinois Central became effective on November 1.

Purchases and Stores

Albert J. Stackpole has been appointed storekeeper of the Boston & Maine, with headquarters at Keene, N. H., succeeding **L. E. Field**, who has been assigned to special duties.

Special

M. J. Gormley, chairman of the car service division of the American Railway Association, has in addition been elected executive vice-president of the American Railway Association, with headquarters as before at Washington,



M. J. Gormley

D. C., a newly created position. Mr. Gormley entered railway service in 1893 on the Chicago & North Western at Eagle Grove, Iowa, and for the following four years he was engaged in various capacities in the maintenance of way and building departments of that road. In 1897 he was appointed stenographer to the division superintendent of the North Western at Boone, Iowa, where he remained until 1899 when he became a stenographer to the general superintendent at Chicago. During the following year he served as a chief clerk and train-

master and subsequently he was appointed chief clerk to the general manager. Later Mr. Gormley held the positions of chief clerk and assistant to the vice-president and assistant to the president of the North Western and in 1917 he became general agent for the American Railway Association at military headquarters at Chicago where he assumed the responsibility for the proper handling of troops and military supplies in the central territory. At the institution of federal control of the railroads in 1917 he was appointed operating assistant to the regional director of the Western region and when the Western region was divided into three sections he was appointed assistant regional director of the Northwestern region. At the conclusion of federal control Mr. Gormley became director of the division of transportation of the American Petroleum Institute of New York, with headquarters at Chicago, where he remained until 1921 when he was appointed chairman of the car service division of the American Railway Association. He occupied this latter position at the time of his election to executive vice-president on November 21.

Obituary

John A. Middleton, vice-president of the Lehigh Valley at New York City, who died on November 17, was born in New York on February 12, 1857. He entered railway service in 1896 as secretary of the Erie. From March, 1898 to 1900, he was also secretary of the New York, Susquehanna & Western. From 1900 to 1902 he served as vice-president and secretary of these two roads and in December, 1902, he was appointed assistant to the president of the Lehigh Valley. He served in the latter

capacity until January, 1903, when he was elected vice-president of that road, the position he held at the time of his death.

Day Mills, former trainmaster and superintendent of car service of the St. Louis Southwestern and trainmaster of the Kansas City Southern, died in a hospital at Texarkana, Ark., on October 29, following a stroke of paralysis. Mr. Mills, who was 75 years old, had been in railway service for 60 years. He had served in the operating departments of the Chicago & North Western, the Iowa Central (now part of the Minneapolis & St. Louis), the Union Pacific, the Missouri Pacific, the Cotton Belt and the Kansas City Southern since he was 14 years of age. At the time of his retirement from active railway service he was assistant inspector of transportation of the Kansas City Southern.

John M. Walker, who retired as superintendent of telegraph of the Denver & Rio Grande Western in 1923, died at Denver, Colo., on November 18. Mr. Walker, who had been connected with the Rio Grande for 43 years and had been in railway service for 55 years, was born on March 11, 1848, at Logansport, Ind. He entered railroad service in 1868 as a telegraph operator on the Toledo, Logansport & Burlington (now part of the Pennsylvania). Later he held the positions of dispatcher on that road, and operator at Defiance, Ohio, operator and agent at Council Bluffs, Iowa, and dispatcher and chief dispatcher at Springfield, Ill., on the Toledo, Wabash & Western (now part of the Wabash). In 1880 Mr. Walker became connected with the Rio Grande as chief dispatcher at Pueblo, Colo., where he remained until 1887, when he was promoted to trainmaster. After serving for 17 years as trainmaster he was, in 1904, promoted

to superintendent of telegraph, with headquarters at Denver, a position he retained until his retirement in 1923.

Samuel A. Latimer, coal traffic manager of the Central region of the Pennsylvania, with headquarters at Pittsburgh, Pa., died on November 21 at his home in that city. Mr. Latimer was born in Woodville, Pa., on November 11, 1885, and entered the service of the Pennsylvania in 1901 as clerk. He subsequently served as clerk in the general freight office of the Pittsburgh & Lake



Samuel A. Latimer

Erie, clerk in the office of the chief of the tariff bureau of the Pennsylvania, traveling tariff inspector for the same road, percentage clerk and assistant chief clerk in the office of the general ore and coal agent at Pittsburgh and chief clerk in the same department. Mr. Latimer was then appointed coal freight agent at Pittsburgh and in July, 1928, he became coal traffic manager of the Pennsylvania at the same point, the position he held at the time of his death.

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A Boston & Maine Freight Train near North Wilmington, Mass.